The State of Utah

Boiler and Pressure Vessel Compliance Manual

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The State of Utah
Labor Commission

Boiler and Pressure Vessel Compliance Manual

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Record of Revision

Revision Number	Purpose	Effective Date
---	Original issue as "General Safety Orders Section 97 - Boilers and Unfired Pressure Vessels"	July 1, 1967
0	Revised to "State of Utah Boiler and Pressure Vessel Rules and Regulations"	July 1, 1975
0a	Revised to mandate that boilers and pressure vessels be registered with the National Board	May 1, 1978
1	Update to be consistent with latest revision of NB-132	July 1, 1979
2	Update to mandate boilers above 400,000 BTU comply with ASME CSD-1	January 1, 1984
3	Update to be consistent with latest revision of NB-132	October 1, 1988
4	Update to be consistent with latest revision of NB-132 and to incorporate changes in Utah Code 34A-7	October 1, 1997
5	Incorporate revised certification fee schedule; incorporate new boiler clearance requirements, reorganize Part II	July 1, 1998
6	Title change of document, incorporate pressure vessel inspection program requirements	November 15, 1999
7	Incorporate revised certification fee schedule; various minor administrative changes	March 1, 2001
7a	Incorporate revised certification fee schedule; various minor administrative changes	July 1, 2002
7b	Incorporate ASME 2002 Addenda	December 16, 2002
7c	Incorporate Editorial Changes	June 16, 2003
7d	Revision in accordance with R616.2.7.	June 18, 2004
8	Remove Appendices A & B	June 1, 2005
8a	Incorporate Gas Pressure Switches, Autoclaves and Oil Field Boiler information; various minor administrative changes	June 1, 2006

INTRODUCTION

History

The Boiler and Pressure Vessel Safety program in Utah has been evolving since 1967. The first milestone occurred on July 1, 1967, when the Utah Legislature enacted the Boiler and Pressure Vessel Act and authorized the Industrial Commission to administer the Act's provisions. Then, in May 1978, the Utah Boiler and Pressure Vessel Rules and Regulations implemented the requirement that all boilers and pressure vessels installed after that date to be registered with the National Board of Boiler and Pressure Vessel Inspectors (National Board) and bear a National Board number. Finally, on July 1, 1997, the Industrial Commission was replaced by the new Utah Labor Commission. Through its Division of Safety, the Utah Labor Commission now enforces the provisions of the Utah Boiler and Pressure Vessel Act.

Relationship of Utah Code, Labor Commission Rules and Boiler and Pressure Vessel Compliance Manual

The Utah Code consists of all statutes enacted by the Legislature, including the Utah Boiler and Pressure Vessel Act. The Act, found in Title 34A Chapter 7, establishes the minimum standards for installation and operation of boilers and pressure vessels in Utah. The Act also authorizes the Labor Commission to adopt rules to enforce the Act. The Boiler and Pressure Vessel Rules clarify boiler and pressure vessel requirements. Like the Boiler and Pressure Vessel Act itself, these rules also have the force of law. The Utah Boiler and Pressure Vessel Compliance Manual (previously the Utah Boiler and Pressure Vessel Regulations) provides details as to how the Division of Safety has implemented the Utah Boiler and Pressure Vessel Act.

The Utah Boiler and Pressure Vessel Compliance Manual was developed to provide architects, engineers, building officials, boiler/pressure vessel installation contractors and boiler/pressure vessel owners and users with an easy to use guide to compliance with Utah's boiler and pressure vessel laws. Since the Utah Boiler and Pressure Vessel Compliance Manual does not have the force of law, any challenge to a requirement listed in this manual will be resolved by enforcing the requirements of the national standards adopted by Rule.

National Standards Adopted

Utah has adopted the following Codes and Standards to provide guidance for the regulation of boilers and pressure vessels in Utah:

Note: Utah Code Title 34A - Chapter 7 - Part 1and Rule R616-2-3 should be consulted for the latest code addenda formally adopted through the rule making process.

Incorporated by Reference:

ASME Boiler and Pressure Vessel Code Sections I, II, III (1), III (2), III (3), IV, V, VI, VII, VIII (1), VIII (2), VIII (3), IX, X, XI

ASME Code B31.1 Power Piping

National Board Inspection Code, NB-23

Controls and Safety Devices for Automatically Fired Boilers, CSD-1 (heat input greater than 400,000 BTU but less than 12,500,000 BTU)

NFPA 85 Boiler and Combustion Systems Hazards Code

Recommended Administrative Boiler and Pressure Safety Rules and Regulations, NB - 132

ANSI/API 510

Note: The ASME Boiler and Pressure Vessel Code is published ever three years with revisions issued as addenda every year. The revisions become mandatory 6 months after the date of issuance and when Boiler and Pressure Vessel Rules (Utah Administrative Code) have been amended to include the addenda.

The Utah Boiler and Pressure Vessel Compliance Manual is largely a reproduction of NB-132 with various editorial changes designed to clarify the application of NB-132 in the State of Utah. In some cases the requirements in this manual are less restrictive than the adopted standard. In the event of a challenge to requirements in this manual, the Division will revert to the requirements of the adopted national standards.

Public Participation

The Safety Division of the Labor Commission uses a Boiler and Pressure Vessel Review Board for consultation on safety, technical and economic issues associated with the regulation of boilers and pressure vessels in Utah. Members of this board represent boiler and pressure vessel users, insurers and repairers. Additional personnel will be added to the Board if it is determined that a specific interest should be represented. Members of this board and the interests they represent include:

Name	**Company**	**Representing**
Michael Guinn	Newfield Production Company	Oil and Gas
George Gurr	Devon Energy	Oil and Gas
Brent R. Halladay	State Fire Marshal	Fire Marshals
Steve Nelson	Hartford Steam Boiler	Insurance Companies
Ron Shapiro	PacifiCorp	Utilities
Eddie Stephens	Tesoro	Refineries
Wyatt Peterson	U of U	Central Heating Plants
Steve Van Dusen	LDS Church	Boiler/Pressure Vessel Owners
Ronald Wyman	R & L Boiler	Installation and Repair

In addition to consultation provided by the Review Board, the Division of Safety welcomes comments and suggestions from others in the boiler and pressure vessel industry or other interested members of the public.

PART I - DEFINITIONS OF TERMS

1. **ACCIDENT** - any event involving a boiler or pressure which results in personnel injury or more than $1000.00 in equipment or property damage.

2. **ACT** - the Boiler and Pressure Vessel Safety Act which was enacted as Title 34A Chapter 7 Utah Code Annotated.

3. **ALTERATION** - any change in the item described on the original Manufacturer's Data Report which affects the pressure containing capability of the boiler or pressure vessel. Nonphysical changes such as an increase in the maximum allowable working pressure (internal or external) or design temperature of a boiler or pressure vessel shall be considered an alteration. A reduction in minimum temperature such that additional mechanical tests are required shall also be considered an alteration.

4. **API Certified Inspector** - an inspector who is certified by the American Petroleum Institute to perform functions specified in API-510 or API-570.

5. **API-510, Pressure Vessel Inspection Code** - the code for maintenance inspection, repair, alteration, and re-rating procedures for pressure vessels used by the petroleum and chemical process industries. API-510 is published by the American Petroleum Institute and is an approved ANSI standard.

6. **API-570, Piping Inspection Code** - the code for maintenance inspection, repair, alteration, and re-rating procedures for process piping used by the petroleum and chemical process industries. API-570 is published by the American Petroleum Institute and is an approved ANSI standard.

7. **API/ASME CODE** - the American Petroleum Institute (API) in conjunction with the ASME Code as used in this manual shall mean the Code for Unfired Pressure Vessels for Petroleum Liquids and Gases, that existed from 1934-1956, and is no longer in use.

8. **APPROVED** - approved by the Labor Commission.

9. **ASME** - the American Society of Mechanical Engineers (ASME), 345 E. 47th Street, New York, NY 10017.

10. **ASME CODE** - The Boiler and Pressure Vessel Code published by the American Society of Mechanical Engineers, including addenda and code cases approved by the council of that Society.

11. **AUTHORIZED INSPECTION ORGANIZATION** - one of the following:

    A. a department or division established by a jurisdiction which has adopted and does administer as legal requirement, one or more sections of the ASME Code, one of which shall be Section 1, and whose inspectors hold

valid commissions issued by The National Board of Boiler and Pressure Vessel Inspectors;

B. an insurance company which has been licensed or registered by the appropriate authority of a state of the United States or a province of Canada to write and does write boiler and pressure vessel insurance, and to provide inspection service of boilers and pressure vessels in such state or province and whose inspectors hold valid commissions issued by The National Board of Boiler and Pressure Vessel Inspectors.

C. an owner-user inspection organization which has been approved by the appropriate authority of a state of the United States or province of Canada to provide inspection service of boilers and/or pressure vessels in such state or province and whose inspectors hold valid commissions issued by The National Board of Boiler and Pressure Vessel Inspectors, or whose inspectors are certified by the American Petroleum Institute.

12. **BOILER** - a closed vessel in which water or other liquid is heated, steam or vapor is generated, steam or vapor is superheated, or any combination of these, under pressure or vacuum by the direct application of energy. The term boiler includes fired units for heating or vaporizing liquids other than water, but does not include fired process tubular heaters and systems.

A. Power Boiler - a boiler in which steam or other vapor is generated at a pressure of more than 15 psig except jacketed kettles. (Also known as a high pressure boiler in Utah.)

B. High-Temperature Boiler- a boiler in which water or other liquid is heated and intended for operation at pressures in excess of 160 psig and/or temperatures in excess of 250^{o}F. (Also known as a high pressure boiler in Utah.)

C. Heating Boiler - a steam or vapor boiler operating at a pressure not exceeding 15 psig or a boiler in which water or other liquid is heated and intended for operation at pressures not exceeding 160 psig or temperatures not exceeding 250^{o}F.

D. Electric Boiler - a boiler which uses electricity as the source of heat.

E. Miniature Boiler - a power boiler or high-temperature boiler which does not exceed the following limits:

1) 16 inch inside diameter of shell;

2) 20 square feet heating surface (not applicable to electric boilers);

3) 5 cubic feet gross volume exclusive of casing and insulation;

4) 100 psig maximum allowable working pressure.

F. Unfired Boiler - an unfired steam or other vapor generating system or liquid heating system using heat from the operation of a processing system or other indirect heat source.

G. Hot Water Supply Boiler - a boiler completely filled with water that furnishes hot water for external usage at pressures not exceeding 160 psig or at temperatures not exceeding 250^{o}F at or near the boiler outlet.

H. Low Pressure Boiler - a boiler of any type that does not meet the pressure and temperature requirements of a power boiler or a high temperature boiler.

I. Portable Boiler - a boiler whose construction and usage permits it to be readily moved from one location to another.

J. Water Heater - a boiler used to supply potable hot water which is heated by the combustion of fuels, electricity or any other source and withdrawn for use external to the system at pressures not exceeding 160 psig, and shall include all controls and devices necessary to prevent water temperatures from exceeding 210^{o}F and does not exceed 200,000 BTU/hr.

K. Modular Boiler - a steam or hot water heating assembly consisting of a grouping of individual boilers called modules intended to be installed as a unit with no intervening stop valves. Modules may be under one jacket or may be individually jacketed. The individual modules shall be limited to a maximum input of 400,000 BTU/hr (117,228 W) (gas), 3 gph (11.4 liter/hr) (oil), or 115 kW (electric).

L. Autoclave Package Unit - a single unit containing a fired steam generator supplying steam to an autoclave which is within the same casing.

13. **CERTIFICATE OF COMPETENCY** - a certificate issued to a person who has passed the examination prescribed by the Commission.

14. **CERTIFICATE OF INSPECTION** - a certificate issued by the Labor Commission for the operation of a boiler or pressure vessel as required by the Act.

15. **CERTIFICATE INSPECTION** - an inspection, the report of which is used by the Labor Commission as justification for issuing, withholding or revoking the inspection certificate. This certificate inspection can be an internal inspection when required; otherwise, it shall be as complete an inspection as possible.

A. **INTERNAL INSPECTION** - as complete an examination as can reasonably be made of the internal and external surfaces of a boiler or pressure vessel while it is shut down and manhole plates, handhole plates or other inspection opening closures are removed as required by the inspector.

B. **EXTERNAL INSPECTION** - an inspection made when a boiler or pressure vessel is in operation.

16. **COMMISSION** - The Labor Commission of the State of Utah.

17. **COMMISSIONER** - the Commissioner of the Labor Commission.

18. **CONDEMNED BOILER, PRESSURE VESSEL** - a boiler or pressure vessel that has been inspected and declared unsafe or disqualified by legal requirements by an inspector, and a stamping or marking has been applied by the inspector designating its condemnation.

19. **EXISTING INSTALLATION** - includes any boiler or pressure vessel constructed, installed, and placed in operation which has completed its initial inspection by a State inspector.

20. **HOT WATER STORAGE TANK** - a closed vessel connected to a water heater used exclusively to contain potable water.

21. **INSPECTOR** - the Chief Boiler Inspector, State inspector, any deputy inspector, owner-user inspector or authorized inspector.

A. **CHIEF BOILER INSPECTOR** - the Chief Boiler and Pressure Vessel Inspector appointed under the Act.

B. **STATE INSPECTOR** - an inspector holding a certificate of competency, and who is regularly employed by the State of Utah.

C. **DEPUTY INSPECTOR** - an inspector holding a certificate of competency, and who is regularly employed by an insurance company authorized to insure against loss from explosion of boilers or pressure vessels in Utah.

D. **OWNER-USER INSPECTOR** - an inspector who holds a valid National Board Owner-User Commission and who has passed the examination prescribed by the Commission or is an API Certified Inspector under a jurisdictionally approved owner-user inspection organization.

E. **AUTHORIZED INSPECTOR** - a properly certified and/or commissioned inspector employed by an Authorized Inspection agency holding an “A” endorsement from the National Board.

22. **JURISDICTION** - a state, commonwealth, county or municipality of the United States or a province of Canada which has adopted one or more sections of the ASME Code, or other codes and standards accepted by the National Board, and maintains a department, bureau or division for the purpose of enforcement of the Boiler and Pressure Vessel Safety Act.

23. **LINED POTABLE WATER HEATER** - a water heater with a corrosion resistant lining used to supply potable hot water.

24. **MODIFICATION** - the process of changing an item that requires revision of the existing design requirements and may also require a revision to the design specification.

25. **NATIONAL BOARD** - The National Board of Boiler and Pressure Vessel Inspectors, (NB) 1055 Crupper Avenue, Columbus, Ohio 43229, whose membership is composed of the Chief Boiler Inspectors of jurisdictions who are charged with the enforcement of the provisions of the Boiler and Pressure Vessel Safety Act.

26. **NATIONAL BOARD INSPECTION CODE (NBIC)** - the Code for jurisdictional authorities, inspectors, users, and organizations performing repairs and alterations to pressure retaining items. It is published by the National Board and is developed under procedures accredited as meeting the criteria for American National Standards.

27. **NATIONAL BOARD COMMISSION** - a certificate issued by National Board to an individual who has passed the National Board examination, who holds a valid certificate of competency and who is regularly employed by an Authorized Inspection Organization.

28. **NATIONAL BOARD COMMISSIONED INSPECTOR** - an individual who: holds a valid Certificate of Competency to perform in-service, repair and/or alteration inspections as defined by the National Board Inspection Code; holds a National Board Commission, and; is regularly employed as an inspector by an Authorized Inspection organization.

29. **NEW BOILER/PRESSURE VESSEL INSTALLATION** - includes all boilers or pressure vessels until the initial State of Utah inspection has been completed.

30. **NONSTANDARD BOILER or PRESSURE VESSEL** - a boiler or pressure vessel that does not bear a stamp acceptable to the jurisdiction , or otherwise does not comply with the Act or stated rules and regulations of Utah.

31. **OIL FIELD BOILER** – a fired boiler which is located at isolated oil/gas wells located in designated oil/gas fields. See H-6

32. **ORIGINAL CODE OF CONSTRUCTION** - documents promulgated by recognized national standards writing bodies that contain technical requirements for construction of pressure retaining items or equivalent to which the pressure retaining item was certified by the original manufacturer.

33. **OWNER OR USER** - any person, firm or corporation legally responsible for the safe installation, operation and maintenance of any boiler or pressure vessel within Utah.

34. **OWNER-USER INSPECTION ORGANIZATION** - an owner or user of pressure vessels who maintains a regularly established inspection department, whose organization and inspection procedures meet the requirements of the National Board rules or API-510, as applicable and are acceptable to the Commission.

35. **PORTABLE** - capable of being carried or moved about without the use of special lifting equipment.

36. **POTABLE WATER -** Fit to drink.

37. **PRESSURE VESSEL** - a vessel in which the pressure is obtained from an external source or by the application of heat from an indirect source, or from a direct source other than those boilers as previously defined.

38. **PSIG** - pounds per square inch gauge.

39. **REINSTALLED BOILER or PRESSURE VESSEL** - a boiler or pressure vessel removed from its original setting and reinstalled at the same location or at a new location without change of ownership.

40. **RELIEF VALVE** - a pressure relief valve actuated by inlet static pressure having a gradual lift generally proportional to the increase in pressure over opening pressure. It may be provided with an enclosed spring housing suitable for closed discharge system application and is primarily used for liquid service.

41. **REPAIR** - the work necessary to restore a pressure retaining item to a safe and satisfactory operating condition.

42. **REPAIR/PRESSURE RELIEF VALVE** - the replacement, re-machining or cleaning of any critical part, lapping of seat and disk or any other operation which may affect the flow passage, capacity function or pressure retaining ability of the valve. Disassembly, reassembly and/or adjustments which affect the pressure relief valve function are also considered a repair.

43. **REPLACEMENT**- the installation of renewal components, appurtenances and subassemblies or parts of a component or system not affecting existing design requirements.

44. **SAFETY RELIEF VALVE** - a pressure relief valve characterized by rapid opening or pop action or by opening in proportion to the increase in pressure over opening pressure, depending on application.

45. **SAFETY VALVE** - a pressure relief valve actuated by inlet static pressure and characterized by rapid opening or pop action.

46. **SECONDHAND BOILER or PRESSURE VESSEL** - a boiler or pressure vessel which has changed both location and ownership since primary use.

47. **STANDARD BOILER or PRESSURE VESSEL** - a boiler or pressure vessel which bears the stamp of Utah, the ASME stamp, the API/ASME stamp, both the ASME and National Board stamp, or the stamp of another jurisdiction which has adopted a standard of construction equivalent to that required by the Commission.

48. **UTAH ADMINISTRATIVE CODE** - also known as Rules, requirements promulgated by the Labor Commission in accordance with the requirements of the Administrative Rules Act of Utah Code. When promulgated, Rules have the force of law.

49. **UTAH CODE** - legislation enacted by the Utah Legislature and signed into law by the Governor.

PART II - ADMINISTRATION

A-1 Minimum Construction Standards

All new boilers, pressure vessels, water heaters and storage tanks, unless otherwise exempt, to be operated in Utah shall be designed, constructed, inspected, stamped and installed in accordance with the applicable ASME Code Section and the latest addenda or other codes and standards accepted by the National Board, Utah Code and Utah Administrative Code. Water heaters shall comply with ASME Code Section IV, HLW, unless exempt under HLW-101. Boilers and pressure vessels installed in Utah after May 1, 1978, which require an ASME (or other codes and standards accepted by the National Board) Manufacturer's Data Report shall bear the manufacturer's "NB" number as registered with the National Board except "UM" pressure vessels and cast iron boilers. A copy of the Manufacturer's Data Report signed by the manufacturer's representative and the National Board authorized inspector shall be filed with the National Board and, when requested, with the Chief Boiler Inspector of Utah.

All high pressure piping, installed in Utah after May 1, 1978, which is external (from the boiler to the first stop valve for a single boiler and to the second stop valve in a battery of two or more boilers having manhole openings) to power boilers shall comply with ASME Boiler and Pressure Vessel Code, Section I, ASME Code B31.1 Power Piping, and this manual.

> All boiler and pressure vessel installations, including reinstalled and secondhand boilers and pressure vessels, shall be installed in accordance with the requirements of the adopted safety codes and this manual. Boiler installations shall also comply with the Controls and Safety Devices for Automatically Fired Boilers (ASME CSD-1) when the boiler heat input is greater than 400,000 BTU, but less than 12,500,000 BTU. This includes tube type boilers that bear the stamping HLW. Boiler installations with heat input greater than 12,500,000 BTU shall comply with NFPA 85 Boiler and Combustion Systems Hazards Code as applicable.

State Special - If, due to a valid impediment to compliance with the original code of construction, a boiler or pressure vessel cannot bear the required construction code and National Board stamping, details of the proposed construction, material specifications and calculations shall be submitted to the Chief Boiler Inspector by the owner or user. This information should be approved by a registered professional engineer experienced in boiler or pressure vessel design prior to submission to the Chief Boiler Inspector. Approval as a "State Special" must be obtained from the Commission before construction is started.

Before a secondhand boiler or pressure vessel component is installed, application for permission to install it shall be filed by the owner or user with the Chief Boiler Inspector and his/her approval obtained.

A-2 Exemptions

The following boilers and pressure vessels shall be exempt from the Act.

A. Boilers and pressure vessels under federal control or regulation.

B. A boiler or a pressure vessel that is excluded from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code.

C. Pressure vessels used for transportation and storage of compressed gases when constructed in compliance with specifications of the U.S. Department of Transportation and when charged with gas marked, maintained, and periodically re-qualified for use, as required by appropriate regulations of the U.S. Department of Transportation.

D. Pressure vessels located on vehicles operating under the rules of other state authorities and used for carrying passengers or freight.

E. Pressure vessels containing liquefied petroleum gas (LPG) under the scope of Utah Code Annotated, Title 53 Chapter 7 Part 3 "Liquefied Petroleum Gas Act". These vessels fall under the jurisdiction of the State Fire Marshal's office.

F. Pressure vessels installed on the right-of-way of railroads and used directly in the operation of trains.

G. Pressure vessels having an internal or external operating pressure not exceeding 15 psig with no limit on size.

H. Pressure vessels having an inside diameter, width, height or cross section diagonal not exceeding 6 inches with no limitation on length of the vessel or pressure.

I. Pressure vessels for containing water under pressure, including those containing air, the compression of which serves only as a cushion, when none of following limitations are exceeded:

1. a design pressure of 300 psig;

2. a design temperature of 210^{o}F

J. Pressure vessels containing water heated by steam or any other indirect means when none of the following limitations are exceeded:

1. a heat input of 200,000 BTU per hour;

2. a water temperature of 210^{o}F

provided such pressure vessels are equipped with an ASME/NB stamped safety relief valve;

K. Hot water supply boilers used exclusively for supplying hot water which are heated by oil, gas or electricity, when none of the following limitations are exceeded:

1. a heat input of 200,000 BTU (58.6kW) per hour;

2. a water temperature of 210^{o}F;

3. a nominal water capacity of 120 gallons.

L. Potable water heaters and hot water storage tanks for operations at a pressure not exceeding 160 psig where none of the following limitations are exceeded:

1. a heat input of 200,000 BTU per hour;

2. a water temperature of 210^{o}F;

3. a nominal water capacity of 120 gallons;

except that they shall be equipped with safety devices in accordance with the ASME Boiler and Pressure Vessel Code Section IV HLW-800.

M. Pressure vessels which may be classified as pressure containers which are integral parts or components of rotating or reciprocating mechanical devices such as pumps, compressors, turbines, generators engines and hydraulic or pneumatic cylinders where the primary design considerations and stresses are derived from the functional requirements of the device.

N. Continuous coil type hot water boilers used only for "steam vapor" cleaning of such things as machinery and buildings when none of the following limitations are exceeded:

1. one (1) inch diameter tubing or pipe size with no drums or headers attached;

2. nominal water containing capacity does not exceed six gallons;

3. water temperature does not exceed 350^{o}F;

4. steam is not generated within the coil, except that they shall be provided with one or more relief valves meeting the requirements of B-6.

O. Boilers or pressure vessels which are located in private residences or in apartment houses of less than five family units.

In any circumstance, the owner or user may confer with the Chief Boiler Inspector regarding exemption or non-exemption.

A-3 National Board Commission Examination

Utah requires that all boiler and pressure vessel inspectors in the State be commissioned by the National Board except those API certified inspectors conducting owner-user pressure vessel inspections. National Board commission examinations will be held at the office of the Labor Commission or at any other location to be selected by the Labor Commission, four times each year. The examinations are held on the first Wednesday and Thursday in the months of March, June, September and December. In order to qualify as a prospective National Board Commissioned Inspector an applicant shall have, as a minimum, a high school education (12 years or equivalent educational system) and shall have a minimum of 5 credit points for the combination of education and experience from the following requirements or an applicant may complete the National Board Inspector Training Program.

Education (1 credit minimum, 4 credits maximum)	
Category	Credit Points
Technical Training in Boiler and Pressure Vessel Inspection (1 point maximum): Continuing Education - having completed and received a passing grade in a training course in at least one of the following (or related) subjects: quality assurance, engineering, fabrication methods, nondestructive examination or inspection. Code Courses - completion of a course on knowledge, understanding and general structure of the National Board Inspection Code or other codes or related standards National Board Conducted Courses - completion of a course on procedures and techniques of auditing, and/or basic inspection methods.	1
Technical Curriculum • Diploma from an accredited technical school • Power Engineering Certificate • Second Class Power Engineer's Certificate (Canada) • Accredited Trade Certificate in skills such as Boilermaker, Mechanic, Steam Fitter, Machinist, Millwright or Welder • Evidence of completion of a military or merchant marine training course on marine or stationary boilers or pressure vessels	2
College/University • Associate's degree in science, mathematics or engineering • Bachelor's degree in science or mathematics • First Class Power Engineer's Certificate (Canada)	3

College/University Bachelor's degree in engineering	4

Experience* (1 credit minimum, 4 credits maximum)	
Category	Credit Points
Engineering, design, or design registration in Canada	1
Manufacturing, including fabrication methods or processes in either shop or field	1
Responsible charge in the operation of boilers exceeding 50,000 lb/hr of steam	1
Perform repair, alteration or maintenance of boilers/pressure vessels	1
Quality control systems related to boiler/pressure vessel manufacturing, repair or alteration in either shop or field	1
Inspection of boilers/pressure vessels either in-service or during construction in either shop or field	1
NDE Level II examiner of boilers/pressure vessels	1

- For each full year's technical experience

Applications for examination shall be in writing on a form to be furnished by the Chief Boiler Inspector stating the education of the applicant, a list of the applicant's employers, the applicant's period of employment and position held with each employer. Applications containing willful falsifications or untruthful statements shall be cause for rejection. Applications shall be submitted to the Chief Boiler Inspector at least 45 days prior to the date of examination. If the applicant's education and experience are acceptable to the Labor Commission, the applicant shall be given a written examination prepared by The National Board of Boiler and Pressure Vessel Inspectors or the American Petroleum Institute, as applicable, dealing with the construction, maintenance and repair of boilers and pressure vessels and their appurtenances, and the applicant shall be accepted or rejected on the merits of this examination. If the applicant successfully passes the examination, a commission will be issued by the National Board when the applicant is employed on a full-time basis by an authorized inspection organization. An applicant who fails to pass the examination will be permitted to retake any subsequent examination. However, if an applicant fails the examination three times, a mandatory waiting period of one year is required before the examination may be taken again.

A-4 Examination Fees

A fee of one hundred dollars ($100.00) will be charged for each applicant taking the examination for a National Board commission or an API certification. This fee is charged each time an applicant takes the respective examination.

A-5 Certificate of Competency

A Utah certificate of competency and an identification card may be issued by the Labor Commission to:

A. an inspector employed by the State of Utah;

B. an inspector who is employed by an insurance company which is authorized to insure and does insure against loss from explosions of boilers and pressure vessels in Utah;

C. an inspector employed as described in either (A) or (B) above who conducts shop or field inspections of new boilers, pressure vessels, or nuclear components in accordance with the applicable ASME Code requirements;

D. an inspector who is continuously employed by a company which operates pressure vessels in Utah and has a valid owner-user inspection organization agreement provided that the applicant has satisfactorily passed the National Board commissioning or API examination.

The request for a Utah certificate of competency and identification card shall be in writing and accompanied by, when applicable, a copy of the applicant's commission and commission card and a fee of twenty-five dollars ($25.00.) The examination will be held on the first and third Thursday of each month.

The Utah certificate of competency and identification card shall be returned to the Chief Boiler Inspector when the inspector is no longer employed by the organization employing that inspector at the time that the certificate was issued. Each person holding a valid Utah certificate of competency and who conducts inspections in Utah shall apply to the Chief Boiler Inspector to obtain a renewal identification card annually. A fee of twenty dollars ($20.00) is required for renewal.

Deputy Inspectors will be randomly audited to ensure they are meeting the requirements of the Division’s inspection program.

An inspector's Utah certificate of competency may be suspended by the Chief Boiler Inspector after due investigation and recommendation by the Labor Commission for any reason deemed detrimental to the boiler and pressure vessel inspection program of Utah. Written notice of the suspension shall be given to the inspector and his/her employer by the Chief Boiler Inspector within 10 days of the effective date of the suspension. Persons whose Utah certificates of competency have been suspended may appeal to the Labor Commission and may be present in person and represented by counsel at the hearing of the appeal.

A-6 Conflict of Interest

An inspector shall not engage in the sale of any services, article, or device relating to boilers, pressure vessels, or their appurtenances.

A-7 Inspections

Except as permitted below, power boilers and high-temperature water boilers (high pressure boilers) shall receive an internal and external inspection annually. Either inspection may be the certificate inspection. The inspection period for power boilers, high temperature water boilers and high pressure water boilers may be extended by the Labor Commission upon written application of the owner/user, with the recommendation of an inspector. Such extensions will be granted in writing by the Labor Commission.

Jacketed kettles, regardless of operating pressure, are inspected biennially (every 2 years).

Low pressure boilers and water heaters covered by this manual shall receive a certificate inspection biennially.

A. For steel steam boilers, this inspection shall include an internal and an external inspection. The external inspection shall be performed while the boiler is in service.

B. Hot water heating and hot water supply boilers shall have an external inspection biennially and where construction permits, an internal inspection at the discretion of the inspector.

C. Self contained auto claves with their own steam generating capability that is considered a boiler unit operating above 15 psi steam pressure shall be inspected every twenty-four (24) months.

If a boiler or pressure vessel is covered by insurance and the policy specifies inspection requirements, the insurance company inspectors (deputy inspectors) will conduct the inspections within the inspection frequencies established in Utah Code and this manual. If deputy inspectors do not perform the required inspections within ninety (90) days of the operating certificate's expiration date, a state of Utah boiler inspector will perform the inspection to assure the safety of the boiler or pressure vessel. In the event that a state boiler inspector performs an inspection on an insured boiler or pressure vessel, the insurance company will be invoiced for a Special Inspection.

Internal inspections, if used as a certification inspection, shall be carried out prior to the expiration date of the certificate and at a time mutually agreeable to the inspector and owner/user. External inspections may be performed by the inspector during reasonable hours and without prior notification.

When, as a result of external inspection or determination by other objective means, in the inspector's judgment that continued operation of the boiler or pressure vessel constitutes a menace to public safety, the inspector may request an internal inspection, an appropriate pressure test, or both, to evaluate conditions. In such instances, the owner or user shall prepare the boiler or pressure vessel for such inspections or tests as the inspector may designate.

A-8 Inspection of Exempted Boilers or Pressure Vessels

The Division will perform safety inspections of boilers and pressure vessels that are exempted in section A-2 upon receiving a written request from the owner. These inspections will be performed and invoiced as Special Inspections. Upon completion of the inspection, the inspector will notify the owner of any safety code violations. Correction of the code violations is solely at the discretion of the owner.

If the owner desires a Certificate of Inspection/Permit to Operate, the violations must be corrected to the satisfaction of the inspector. The owner will also be invoiced for the appropriate certificate fee from section A-15.

A-9 Inspection Reports

Inspection reports shall be submitted within 30 days from date of the completion of the inspection.

Owner-user inspection agencies shall report in accordance with A-12.

A-10 Canceled or Suspended Insurance

All insurance companies shall notify the Chief Boiler Inspector, within 30 days, of all boilers or pressure vessels on which insurance is written, canceled, not renewed or suspended because of unsafe conditions.

A-11 Unsafe Boilers or Pressure Vessels

If, upon inspection, an inspector finds a boiler or pressure vessel to be unsafe for further operation, the inspector shall promptly notify the owner or user, stating what repairs or other corrective measures are required to bring the object into compliance with standards and codes. Unless the owner or user makes such repairs or adopts such other corrective measures promptly, the state or deputy inspector shall immediately notify the Chief Boiler Inspector. Until such corrections have been made no further operation of the boiler or pressure vessel involved shall be permitted. If an inspection certificate for the object is required and is in force, it shall be suspended by the inspector (Chief Boiler Inspector, State inspector or deputy inspector). When reinspection establishes that the necessary repairs have been made or corrective actions have been taken and that the boiler or pressure vessel is safe to operate, the Chief Boiler Inspector shall be notified. At that time an inspection certificate, where applicable, will be issued.

If a deputy inspector finds that a boiler or pressure vessel or any of its appurtenances is in such condition that the deputy inspector's company would refuse insurance, the company shall immediately notify the Chief Boiler Inspector and submit a report on the defects.

A-12 Owner-User Inspections

Any person, firm, partnership, or corporation operating pressure vessels in Utah may seek approval and registration as an owner-user inspection organization by filing an application with the Chief Boiler Inspector on prescribed forms and request approval by the Labor Commission. Each application shall be accompanied by a fee.

The application and registration shall show the name of the organization, its principal address in Utah, and the name and address of the person or persons having supervisory responsibility over the inspections. Changes in supervisory personnel shall be reported to the Chief Boiler Inspector within 30 days after the change.

Each owner-user inspection organization shall:

A. conduct inspections of the pressure vessels utilizing only qualified inspection personnel;

B. retain on file at the location where equipment is inspected a true record of each inspection including the signature (or the electronic equivalent) of the inspector;

C. promptly notify the Chief Boiler Inspector of any pressure vessel which does not meet requirements for safe operation;

D. maintain inspection records which will include a list of pressure vessels covered by the Act, showing a serial number and an abbreviated description necessary for identification, the date of the last inspection of each unit, and the approximate date for the next inspection within a 60 month period. Such inspection records shall be readily available for examination by the Chief Boiler Inspector or authorized representative during business hours;

E. transmit an annual inspection statement including the number of vessels covered by this Act inspected during the year and certifying that each inspection was conducted in accordance with the inspection requirements provided for by the Act. The statement shall be signed by the individual having supervisory responsibility for the inspections and shall be accompanied by a filing fee as established by the Labor Commission (see P-15).

Inspection certificates are not required for pressure vessels inspected by an owner-user inspection organization, when all of the above requirements are met.

A-13 Defective Conditions (External Inspection)

If an inspector notes, during external inspection, evidence of a leak or crack, sufficient covering of the boiler or pressure vessel shall be removed to permit the inspector to satisfactorily determine the safety of the boiler or pressure vessel. If the covering cannot be removed at that time, the inspector may order the operation of the boiler or pressure vessel stopped until such time as the covering can be removed and proper examination made.

A-14 Accident Notification

When an accident occurs involving a boiler, pressure vessel, or power piping, the owner or user shall promptly notify the Chief Boiler Inspector and submit a detailed report of the accident. In the event of a personal injury or any explosion, notice shall be given immediately. The boiler, pressure vessel, power piping, or any associated parts, shall not be removed or disturbed before permission has been given by the Chief Boiler Inspector, except for the purpose of saving human life and limiting consequential damage.

A-15 Fees

Fees that will be charged as required by Utah Code, 34A-7-104, for the operating certification (permit to operate) of a boiler or pressure vessel are set by the Utah legislature. These fees shall be paid by the owner or user unless other contractual arrangements exist. Failure to pay the fees may lead to a legal injunction to prevent the operation of the boiler or pressure vessel. The fee schedule for boiler and pressure vessel certifications and inspections follows:

Certification/Inspection	Fee
New Pressure Vessel Certification	$ 45.00
Pressure Vessel Certification	$ 30.00
Existing Jacketed Kettles and Boiler Certification (≤250,000 BTU)	$ 30.00
New Jacketed Kettles and Boiler Certification (≤250,000 BTU)	$ 45.00
Existing Boiler Certification (>250,000 BTU but ≤4,000,000 BTU)	$ 60.00
New Boiler Certification (>250,000 BTU but ≤4,000,000 BTU)	$ 90.00
Existing Boiler Certification (>4,000,000 BTU but ≤20,000,000 BTU)	$150.00
New Boiler Certification (>4,000,000 BTU but ≤20,000,000 BTU)	$225.00
Existing Boiler Certification (>20,000,000 BTU)	$300.00
New Boiler Certification (>20,000,000 BTU)	$450.00
Special Inspection	$60.00/hour + expenses

These fees are based on average inspection times and an hourly labor rate of $60.00/hour.

If, during the initial inspection, the boiler passes the inspection, the owner will be invoiced only for the appropriate certification fee. If the inspector finds non-compliance items, he will explain the deficiencies to the boiler owner and request that the owner schedule a follow-up inspection when the items have been corrected. If the items have been corrected on the follow-up inspection, the owner will be invoiced only for the appropriate certification fee. If the items have not been corrected by the follow-up inspection, the owner will be invoiced for a special inspection ($60.00 minimum). For each subsequent follow-up inspection the owner will be invoiced for a special inspection. When the boiler finally passes the inspection, the owner will be invoiced for the appropriate certification fee.

A-16 Restamping Boilers and Pressure Vessels

When the stamping on a boiler or pressure vessel becomes illegible or indistinct, the inspector shall inform the owner or user that it needs to be restamped. The request for permission to restamp the boiler or pressure vessel shall be made to the Chief Boiler Inspector. Proof of the original stamping shall be submitted with the restamping request. Restamping shall be done only in the presence of a State of Utah Boiler and Pressure Vessel Inspector, and shall be identical with the original stamping except for the ASME Code symbol stamp. The inspector who witnessed the restamping on the boiler or pressure vessel shall submit a notice of completion which includes a facsimile of the stamping applied to the Chief Boiler Inspector.

A-17 Operation of Unsafe Boilers or Pressure Vessels

If a boiler or pressure vessel is found to be in such condition that it is unsafe to operate, the inspector shall notify the owner and the Chief Boiler Inspector and specify the conditions which will allow continued safe operation. If the owner fails to establish the conditions for safe operation within a reasonable amount of time as determined by the Chief Boiler Inspector, the Chief Boiler Inspector may start legal proceedings against the owner. If, in the judgment of the inspector, an immediate danger to life and health situation exists, the inspector may order the boiler or pressure vessel removed from service.

Any person or organization operating a boiler or a pressure vessel with a suspended operating certificate shall be subject to the penalty specified in Utah Code 34A-7-105.

A-18 Condemned Boilers or Pressure Vessels

Any boiler or pressure vessel having been inspected and declared unfit for further service by an inspector shall be stamped by a state inspector on either side of the State number with the letters "XXX", as shown below, which will designate a condemned boiler or pressure vessel.

Boiler XXX U-00 XXX

Pressure Vessel XXX UV-00 XXX

Any person, firm, partnership, or corporation using or offering for sale a condemned boiler or pressure vessel for operation within Utah shall be subject to the penalties in Utah Code 34A-7-105.

A-19 Reinstallation of Boilers or Pressure Vessels

When a stationary boiler or pressure vessel is moved and reinstalled within Utah, the attached fittings and appurtenances shall comply with the requirements for new installations.

When a standard boiler or pressure vessel within Utah is to be moved outside of Utah for temporary use or for repair, alteration, or modification, an application shall be made by the owner or user to the Chief Boiler Inspector for permission to reinstall the boiler or pressure vessel in Utah. When a nonstandard boiler or pressure vessel is removed from Utah, it shall not be reinstalled in Utah.

A-20 Nonstandard Boilers or Pressure Vessels

The installation, operation, sale or the offering for sale of nonstandard boilers or pressure vessels in Utah without prior permission from the Labor Commission is prohibited.

A-21 Used or Secondhand Boilers or Pressure Vessels

Before a used or secondhand boiler or pressure vessel may be placed in operation in Utah, an inspection must be made by a State of Utah inspector. Such boilers or pressure vessels, when installed in Utah, shall be equipped with fittings and appurtenances that comply with the requirements for new installations.

A-22 Working Pressure for Existing Installations

Any inspector may decrease the working pressure on any existing installation if the condition of the boiler or pressure vessel warrants it. If the owner or user does not concur with the inspector's decision, the owner or user may appeal to the Labor Commission which may request a joint inspection by the Chief Boiler Inspector or a deputy inspector and the inspector. The Chief Boiler Inspector shall submit a report with a recommendation to the Commission. The Commission shall make the final decision.

A-23 Repairs and Alterations

Repairs and alterations to boilers and pressure vessels shall be made in accordance with the latest adopted edition of the National Board Inspection Code.

Effective August 1, 1997, the State of Utah no longer qualified welders to conduct repairs on boilers and pressure vessels. On July 1, 1999, the State of Utah Special Qualified Welders program was discontinued.

All companies will have to attain National Board "R" Certificate of Authorization ("R" stamp) prior to conducting welded repairs on boilers or pressure vessels.

A-24 Repairs to Pressure Relief Valves

Repairs to pressure relief valves shall be made only by an organization which holds a valid Certificate of Authorization for use of the National Board Pressure Relief Valve Repair "VR" symbol stamp. At the approval of the Labor Commission, owner-user organizations may test and repair pressure relief devices in accordance with the requirements of the NBIC or API-510. The initial installation testing and adjustments of a new pressure relief valve on a boiler or pressure vessel are not considered a repair, if made by the manufacturer or assembler of the valve.

A-25 Repair, Modification or Replacement of Nuclear Components

Repair, modification or replacement of nuclear components shall be made only by an organization which holds a valid Certificate of Authorization for use of the National Board nuclear "NR" symbol stamp. Repair, modification, or replacement of ASME stamped "NV" pressure relief valves shall be made only by an organization which holds valid National Board Certificate of Authorization for use of the "NR" and "VR" symbol stamps.

A-26 Riveted Patches

In applying riveted patches, the design of the patch and method of installation shall be in accordance with the National Board Inspection Code, 1973 edition.

A-27 Safety Appliances

No person shall attempt to remove or do any work on any safety appliance prescribed by this manual while the appliance is subject to pressure.

If any of these appliances are removed during an outage of a boiler or pressure vessel, they must be reinstalled and in proper working order before the object is returned to service.

No person shall alter any safety or safety relief valve or pressure relief device in any manner.

A-28 New Installations

No boiler or pressure vessel shall be installed in Utah unless it has been constructed in accordance with the ASME Code, registered with the National Board and installed in conformity with this manual except:

A. those exempted by Utah Code;

B. those specifically exempted in A-2 of this manual;

The stamping shall not be concealed by lagging, paint, or any other covering and shall be exposed at all times unless a suitable record is kept of the location of the stamping so that it may be readily uncovered.

A-29 Application of Serial Numbers

Upon completion of the installation of a boiler or pressure vessel, or at the time of the initial certificate inspection of an existing installation, each boiler or pressure vessel shall be identified by a number unique to that item (the "U" or "UV" number in Utah).

A-30 Variances

Any person who believes the Utah Code, Utah Administrative Code or this manual are unreasonable or impose an undue burden upon the owner or user may request a variance from the applicable requirement. The variance request shall be in writing and shall specify how equivalent safety is to be maintained. The Labor Commission may grant the variance provided that the safety of employees or general public is not adversely affected.

When there is a reason to believe, or upon receipt of a complaint, that a variance does not provide freedom from danger equivalent to the published requirement, the Labor Commission, after notice to the owner or user and complainant, may continue, suspend, revoke, or modify the conditions specified in any variance.

No declaration, act, or omission of the Labor Commission, the Chief Boiler Inspector, state inspectors or deputy inspectors, other than a written order authorizing a variance as permitted above, shall be deemed to exempt, either wholly or in part, expressly or implied, any owner or user from full compliance with the terms of any law or rule of the State of Utah.

A-31 Penalties

Any person, firm or corporation violating any of the provisions of Utah Code or the Utah Administrative Code as they apply to boiler and pressure vessels may be subject to the provisions of Utah Code 34A-7-105.

PART III - GENERAL REQUIREMENTS

G-1 Inspection of Boilers and Pressure Vessels

All boilers and pressure vessels not exempted by Utah Code or Utah Administrative Code and which are subject to regular inspections, shall be prepared for such inspections as required in G-2.

G-2 Preparation for Inspection

The owner or user shall prepare each boiler or pressure vessel for inspection, and shall prepare for and apply a hydrostatic or pressure test, whenever necessary, on the date arranged by the inspector which shall not be less than seven (7) days after the date of notification.

A. Boilers - The owner or user shall prepare a boiler for internal inspection in the following manner:

1. water shall be drawn off and the boiler washed thoroughly;

2. requirements of 29 CFR 1910.147 The Control of Hazardous Energy (Lockout/Tagout) must be met.

3. requirements of 29 CFR 1910.146 Permit Required Confined Spaces must be met.

4. manhole and handhole plates, washout plugs and inspection plugs in water column connections shall be removed as required by the inspector. The furnace and combustion chambers shall be cooled and thoroughly cleaned;

5. all grates of internally fired boilers shall be removed;

6. insulation or brickwork shall be removed as required by the inspector in order to determine the condition of the boiler, headers, furnace, supports or other parts;

7. the pressure gage shall be removed for testing as required by the inspector;

8. any leakage of steam or hot water into the boiler shall be prevented by disconnecting the pipe or valve at the most convenient point or any appropriate means approved by the inspector;

9. before opening the manhole or handhole covers and entering any parts of the steam generating unit connected to a common header with other boilers, the nonreturn and steam stop valves must be closed, tagged, and locked, and drain valves or cocks between the two valves opened. The feed valves must be closed, tagged, and locked, and drain valves

or cocks, if installed, located between the two valves opened. After draining the boiler, the blowoff valves shall be closed, tagged and locked. Blowoff lines, where practical, shall be disconnected between pressure parts and valves. All drains and vent lines shall be opened.

B. Pressure Vessels - Pressure vessels shall be prepared for inspection to the extent deemed necessary by the inspector and the applicable procedures outlined in (A) above.

G-3 Improper Preparations for Inspection

If a boiler or pressure vessel has not been properly prepared for an internal inspection, or if the owner or user fails to comply with the requirements for a pressure test as set forth in these rules, the inspector will decline to make the inspection or test. The inspection certificate may be withheld or the right-to-operate revoked, until the owner or user complies with the requirements.

G-4 Removal of Covering to Permit Inspection

If there is evidence of a leak or crack, sufficient covering of the boiler or pressure vessel shall be removed to permit the inspector to satisfactorily determine the safety of the boiler or pressure vessel.

G-5 Lap Seam Crack

The shell or drum of a boiler or pressure vessel, in which a lap seam crack is discovered along a longitudinal riveted joint, shall be repaired in accordance with NBIC Part RD. A lap seam crack is a crack found in lap seams extending parallel to the longitudinal-joint and located either between or adjacent to rivet holes.

G-6 Pressure Test

A pressure test, when applied to boilers or pressure vessels, need not exceed the maximum allowable working pressure or the setting of the lowest set safety valves. The pressure shall be under proper control so that, in no case, shall the required test pressure be exceeded.

During a pressure test the safety valve or valves shall be removed or each valve disk shall be held to its seat by means of a testing clamp. Screwing down the compression screw upon the spring is not permitted. A plug device designed for this purpose may be used.

It is suggested that the minimum metal temperatures during a pressure test shall be not less than 70^{o}F and that the maximum metal temperature during inspection shall not exceed 120^{o}F.

When a pressure test is applied to determine tightness, the pressure shall be equal to the normal operating pressure, but should not exceed the relief pressure of the safety relief valve with the lowest setting.

When the contents of the vessel prohibit contamination by any other medium or when a water pressure test is not possible, other testing media may be used providing the precautionary requirements of the applicable section of the ASME Code are followed. In such cases, there shall be an agreement between the owner and the inspector.

G-7 Automatic Low Water Fuel Cutoff and/or Water Feeding Device

Each automatically fired steam or vapor system boiler shall be equipped with an automatic low-water fuel cutoff to automatically cut off the fuel supply when the surface of the water falls to the lowest safe waterline. If a water feeding device is installed, it shall be constructed so that the water inlet valve cannot feed water into the boiler through the float chamber. The lowest safe waterline should not be lower than the lowest visible part of the water glass.

Fuel or feedwater control devices may be attached directly to a boiler. For low-pressure boilers, these control devices may be attached to the tapped openings provided for attaching a water glass direct to a boiler, provided that such connections from the boiler are nonferrous tees or "Y"s not less than 1/2 inch pipe size between the boiler and the water glass. The straightway tapping of the "Y" or tee should take the water glass fittings and the side outlet should take the fuel cutoff or water feeding device. The ends of all nipples shall be reamed to full size diameter.

Designs with a float and float bowl shall have a vertical straightway valve drain pipe at the lowest point in the water equalizing pipe connections by which the bowl and the equalizing pipe can be flushed and the device tested.

For all hot water heating boilers installed after July 1, 1997, acceptable shutoff valves or cocks must be installed for testing external low water cutouts. These valves must be designed to automatically return to the open position when testing is complete [See ASME Boiler and Pressure Vessel Code Section IV HG-614 paragraph (d)].

G-8 Pressure Reducing Valves

Where pressure reducing valves are used, one or more safety or safety relief valves shall be provided on the low-pressure side of the reducing valve when the piping or equipment on the low-pressure side does not meet the requirements for the full initial pressure. The safety or safety relief valves shall be located as close as possible to the reducing valve. Proper protection shall be provided to prevent injury or damage caused by the escaping fluid from the discharge of safety or safety relief valves if vented to the atmosphere. The combined discharge capacity of the safety or safety relief valves shall be such that the pressure rating of the lower pressure piping or equipment shall not be exceeded in case the reducing valve fails in the open position.

The use of hand controlled bypasses around reducing valves is permissible. If a bypass is used around the reduction valve, the safety valve required on the low-pressure side shall have capacity to relieve all the fluid that can pass through the bypass without overpressuring the low-pressure side.

A pressure gage shall be installed on the low-pressure side of a reducing valve.

G-9 Boiler Blowoff Equipment

The blowdown from a boiler or boilers that enters a sanitary sewer system or blowdown which is considered a hazard to life or property shall pass through some form of blowoff equipment that will reduce pressure and temperature

G-10 Location of Discharge Piping Outlets

The discharge of safety valves, blowoff pipes and other outlets shall be located and supported as to prevent injury to personnel.

G-11 Supports

Each boiler and pressure vessel shall be supported by masonry or structural supports of sufficient strength and rigidity to safely support the boiler or pressure vessel and its contents. There shall be no excessive vibration in either the boiler, pressure vessel or its connecting piping.

G-12 Boiler Door Latches

A watertube boiler shall have inward opening firing doors, unless the doors are provided with substantial and effective latching or fastening devices or otherwise constructed to prevent them, when closed, from being blown open by pressure on the furnace side.

Only positive, self locking latches or fastenings shall be used. Friction contacts, latches, or bolts actuated by springs shall not be used. The requirements for latches or fastenings shall not apply to coal openings of downdraft or similar furnaces.

All other doors, except explosion doors, not used in the firing of the boiler, may be provided with bolts or fastenings in lieu of self-locking latching devices.

Explosion doors, if used and if located in the setting walls within 7 feet of the firing floor or operating platform, shall be provided with substantial deflectors to divert the blast.

G-13 Clearance

When boilers are replaced or new boilers are installed in either existing or new buildings, a minimum height as required in the table below shall be provided between the top of the boiler and the ceiling or any other structure, and meet the appropriate clearance requirement listed in the table below between all sides of the boiler and adjacent walls or other structures. Boilers and pressure vessels having manholes shall have 5 feet of clearance from the manhole opening and any wall, ceiling or piping that will prevent a person from entering the boiler or vessel.

Boiler Clearance Requirements		
Boiler Type	**Heat Input (BTU/HR)**	**Required Clearance** (sides and top)
All	≤ 400,000	Manufacturer's Recommendations
All	> 400,000 but ≤ 4,000,000	18 inches
All	> 4,000,000	3 feet

In addition to meeting the required clearance, all boilers and pressure vessels shall be located so that adequate space will be provided for the proper operation of the boilers and pressure vessels and their appurtenances. This includes the inspection of all surfaces, tubes, waterwalls, economizers, piping, valves and other equipment, maintenance of all related equipment and repair and/or replacement of tubes.

An exception to this may be granted at the discretion of the State of Utah inspector for unfired boilers or pressure vessels if the installation does not represent a significant risk of personnel injury or a fire safety hazard.

G-14 Ladders and Runways

When necessary for safety, there shall be a steel runway or platform, of standard construction, installed across the tops of adjacent boilers or pressure vessels or at some other convenient level to afford safe access. All walkways shall have at least two means of exit, each to be remotely located from the other.

G-15 Suggestions for Operations

It is suggested that the Recommended Rules for Care of Power Boilers, Section VII, and the Recommended Rules for Care and Operation of Heating Boilers, Section VI, of the ASME Code, be used as a guide for proper and safe operating practices.

G-16 Combustion Air Supply and Ventilation of Boiler Room

A permanent source of outside air shall be provided for each boiler room to permit satisfactory combustion of the fuel as well as proper ventilation of the boiler room under normal operating conditions.

A. The total requirements of the burners for all fired pressure vessels in the boiler room must be used to determine the net louvered area in square feet (see the following table and equation):

Input (BTU/HR)	Required Air (CFM)	Minimum Net Louvered Area (FT^2)
500,000	125	1.0
1,000,000	250	1.0
2,000,000	500	1.6
3,000,000	750	2.5
4,000,000	1,000	3.3
5,000,000	1,250	4.1
6,000,000	1,500	5.0
7,000,000	1,750	5.8
8,000,000	2,000	6.6
9,000,000	2,250	7.5
10,000,000	2,500	8.3

(BTU/10,000) X 2.5 = CFM/300 CFM per square foot of net required area

B. When mechanical ventilation is used to supply combustion and ventilation air to the boiler room, the fan must be running for the firing device to operate. The velocity of air through the ventilating fan shall not exceed 500 feet per minute and the total air delivered shall be equal to or greater than calculated in paragraph (A).

G-17 Gas Burners

A. For installations which are gas fired, the burners used shall conform to the applicable requirements of nationally recognized standards.

B. Boiler units having inputs equal to or less than 2,500,000 btu/hr and utilizing pilot ignition systems do not require:

1. A manually operated gas shutoff valve after the down stream safety shutoff valve for each burner.*

2. A manually operated leak test valve installed between the upstream valve and the manually operated gas valve.

*Rationale: Units that fall within this category do not require high/low gas pressure switches, thus do not need the redundant manual valve for testing purposes.

G-18 Gas Venting (Units above 400,000 btu's/hr)

Atmospheric vents, gas vents, bleed or relief lines shall be piped to a safe point of discharge as determined by the authority having jurisdiction. A means shall be provided at the point of discharge to prevent blockage. Atmospheric vent lines when manifold, shall be connected into a common line having a cross sectional area not less than the area of the largest vent line plus 50% of the areas of the additional vent lines. Atmospheric vent lines shall not be connected to any gas vents, bleed lines or relief lines. A gas bleed line from a diaphragm control valve or vent line from a pressure regulator may be vented to a constant burning pilot in the boiler.

G-19 Gas Pressure Switches (Units above 2,500,000 btu's/hr)

Low and high gas pressure switches shall accomplish a safety shutdown and lockout before the manifold gas pressure is less than 50% or exceeds 150% of the boiler/ burner's main manifold gas pressure.

a. The low gas pressure switch shall be located upstream of the safety shutoff valves(s).
b. The high gas pressure switch shall be located downstream of the gas pressure regulator and may be located downstream of all main burner gas supply controls.

G-20 Emergency Shutdown Switches (Units above 400,000 btu's/hr)

A manually operated remote shutdown switch or circuit breaker should be located just outside the boiler room door and marked for easy identification, Consideration should also be given to the type and location if the switch to safeguard against tampering. If the boiler room door is on the building exterior the switch should be located just inside the door. If there is more than one door to the boiler room, there should be a switch located at each door.

G-21 Jacketed Steam Kettles

Fired or electric jacketed steam kettles are acceptable for installation if constructed and stamped in accordance with the ASME Code Sections I, IV, or VIII, Division 1 and registered with the National Board.

G-22 Stacks

The boiler's vent connector, for its entire length, shall be equal to or greater than the outlet vent collar provided by the manufacturer, unless otherwise specified, by the boiler/vent manufacturer.

When two or more vent connectors are joined together, the area of the vent shall not be less than the area of the largest vent connector inlet plus 50% of the areas of all additional inlets.

Every portion of a vent connector's horizontal run shall have a rise of not less than 1/4 inch per linear foot from the boiler to the vertical vent.

G-23 Special Inspections

Special inspections such as shop inspections, shop reviews, audits and inspections of secondhand or used boilers or pressure vessels made by the Safety Division shall include a fee as specified in A-15.

All code stamp holders are required to provide the State with an uncontrolled copy of their Quality Assurance and Quality Control manuals. Substantive changes to these manuals should also be forwarded to the State.

G-24 Conditions Not Covered

For any conditions not covered by these requirements, the applicable provisions of the adopted sections of the ASME Boiler and Pressure Vessel Code, the National Board Inspection Code, the National Fire Protection Association Standards, or the American Petroleum Institute Pressure Vessel Inspection Code shall apply.

PART IV - POWER BOILERS

B-1 Age Limit of Existing Boilers

The age limit of any boiler of nonstandard construction, installed prior to the date the Act became effective, shall be 30 years. A nonstandard boiler may continue in operation past 30 years if it meets all of the following:

A. Does not have lap-riveted longitudinal joints, and;

B. Satisfactorily completes a thorough internal and external inspection, and;

C. Satisfactorily completes a hydrostatic pressure test of 1-1/2 times the maximum allowable working pressure held for at least 30 minutes.

Nonstandard boilers that meet these conditions may continue in operation at the working pressure as determined in B-3.

The age limit of any nonstandard boiler having lap-riveted longitudinal joints and operating at a pressure in excess of 50 psig shall be 20 years. This type of boiler, when removed from an existing setting, shall not be reinstalled for a pressure in excess of 15 psig. A reasonable time for replacement, not to exceed one year, may be given at the discretion of the Labor Commission.

The age limit of boilers of standard construction installed prior to the date the Act became effective shall be dependent on thorough internal and external inspection and where required by the inspector, a hydrostatic pressure test not exceeding 1-1/2 times the allowable working pressure. If the boiler, under these test conditions, exhibits no distress or leakage, it may be continued in operation at the working pressure determined by B-2.

The shell or drum of a boiler in which a lap seam crack develops along a longitudinal lap-riveted joint shall be repaired in accordance with NBIC Part RD. A lap seam crack is a crack found in lap seams extending parallel to the longitudinal joint and located either between or adjacent to rivet holes.

B-2 Maximum Allowable Working Pressure for Standard Boilers

The maximum allowable working pressure for standard boilers shall be determined in accordance with the applicable provisions of the edition of the ASME Code under which they were constructed and stamped.

B-3 Maximum Allowable Working Pressure for Nonstandard Boilers

The maximum allowable working pressure for boilers fabricated by riveting shall be determined by the applicable rules of the 1971 Edition of Section I of the ASME Code.

The lowest factor of safety permissible on existing installations shall be 5.0, except for horizontal-return-tubular boilers having continuous longitudinal lap seams more than 12 feet in length, the factor of safety shall be 8. When this type of boiler is removed from its existing setting, it shall not be reinstalled for pressures in excess of 15 psig.
The maximum allowable working pressure for boilers of welded construction in service may not exceed that allowable in Section I of the ASME Code for new boilers of the same construction.

The maximum allowable working pressure on the shell of a boiler or drum shall be determined by the strength of the weakest course computed from the thickness of the plate, the tensile strength of the plate, the efficiency of the longitudinal joint, the inside diameter of the course, and the factor of safety allowed by these rules in accordance with the following formula:

$$\frac{TStE}{RFS} = \text{MAWP (psig)}$$

Where:

TS = specified minimum tensile strength of shell plate material, psi. When the tensile strength of steel or wrought iron shell plate is not known, it shall be taken as 55,000 psi for steel and 45,000 psi for wrought iron.

t = minimum thickness of shell plate, in weakest course, inches

E = efficiency of longitudinal joint, method of determining is given in paragraph PG-27 of Section I of the ASME Code

R = inside radius of the weakest course of the shell or drum, inches

FS = factor of safety which shall be at least 5.0

The inspector may increase the factor of safety, if the condition and safety of the boiler warrant it.

B-4 Cast Iron Headers and Mud Drums

The maximum allowable working pressure on a water tube boiler, the tubes of which are secured to cast iron or malleable iron headers, or which have cast iron mud drums, shall not exceed 160 psig.

B-5 Pressure on Cast Iron Boilers

The maximum allowable working pressure for any cast iron boiler, except hot water boilers, shall be 15 psig. See H-1, 2 and 4.

B-6 Safety Valves

The use of weighted-lever safety valves or safety valves having either the seat or disk of cast iron are prohibited; valves of this type of construction shall be replaced by direct, spring-loaded, pop-type valves that conform to the requirements of ASME Code, Section I.

Each boiler shall have at least one ASME/NB stamped and certified safety valve, and if it has more than 500 square feet (ft^2) of water-heating surface, or an electric power input of more than 1100 kW, it shall have two or more safety valves of the same type.

The valve or valves shall be connected to the boiler, independent of any other steam connection and attached as close as possible to the boiler without unnecessary intervening pipe or fittings. Where alteration is required to conform to this requirement, owners or users shall be allowed reasonable time in which to complete the work as permitted by the Chief Boiler Inspector.

No valves of any description shall be placed between the safety valve and the boiler or on the escape pipe, if used. When an escape pipe is used, it shall be at least the full size of the safety valve discharge and fitted with an open drain to prevent water lodging in the upper part of the safety valve or in the escape pipe. When an elbow is placed on a safety valve escape pipe, it shall be located close to the safety valve outlet or the escape pipe shall be anchored and supported securely. All safety discharges shall be so located or piped as to be carried clear from walkways or platforms. No more than one elbow is permitted on the discharge of the safety valve.

The safety valve capacity of each boiler shall be such that the safety valve or valves will discharge all the steam that can be generated by the boiler without allowing the pressure to rise more than 6 percent above the highest pressure to which any valve is set, and in no case to more than 6 percent above the maximum allowable working pressure.

One or more safety valves on every boiler shall be set at or below the maximum allowable working pressure. The remaining valves may be set within a range of 3 percent above the maximum allowable working pressure, but the range of setting of all the safety valves on a boiler shall not exceed 10 percent of the highest pressure to which any valve is set.

When boilers of different maximum allowable working pressures with minimum safety valve settings varying more than six percent are so connected that steam can flow toward the lower pressure units, the latter shall be protected by additional safety valve capacity, if necessary, on the lower pressure side of the system. The additional safety valve capacity shall be based upon the maximum amount of steam which can flow into the lower pressure system.

In those cases where the boiler is supplied with feedwater directly from water mains without the use of feeding apparatus (not to include return traps), no safety

valve shall be set at a pressure greater than 94 percent of the lowest pressure obtained in the supply main feeding the boiler.

The relieving capacity of the safety valves on any boiler shall be checked by one of the three following methods and, if found to be insufficient, additional valves shall be provided:

A. by making an accumulation test, which consists of shutting off all other steam discharge outlets from the boiler and forcing the fires to the maximum. The safety valve capacity shall be sufficient to prevent a rise of pressure in excess of 6 percent of the maximum allowable working pressure. This method should not be used on a boiler with a superheater or reheater;

B. by measuring the maximum amount of fuel that can be burned and computing the corresponding evaporative capacity (steam generating capacity) upon the basis of the heating value of this fuel. These computations shall be made as outlined in the Appendix of the ASME Code, Section I;

C. by measuring the maximum amount of feedwater that can be evaporated.

When either of the methods outlined in (B) or (C) is employed, the sum of the safety valve capacities shall be equal to or greater than the maximum evaporative capacity (maximum steam generating capacity) of the boiler.

B-7 Boiler Feeding

Each boiler shall have a feed supply which will permit it to be fed at any time while under pressure.

A boiler having more than 500 square feet (ft^2) of water heating surface shall have at least two suitable means of feeding, at least one of which shall be a feed pump. A source of feed at a pressure 6 percent greater than the set pressure of the safety valve with the highest setting may be considered one of the means. Boilers fired by gaseous, liquid, or solid fuel in suspension may be equipped with a single means of feeding water provided means are furnished for the shutoff of heat input prior to the water level reaching the lowest safe level.

The feedwater shall be fed into a boiler so that the water will not be discharged directly against surfaces exposed to gases of high temperature or direct radiation from the fire. For pressures greater than 400 psig, the feedwater inlet through the drum shall be fitted with shields, sleeves, or other suitable means to reduce the effects of temperature differentials in the shell or head.

The feed piping to the boiler shall be provided with a check valve near the boiler and a valve or cock between the check valve and the boiler. When two or more boilers are fed from a common source, there shall also be a valve on the branch to

each boiler between the check valve and the source of supply. Whenever a globe valve is used on feed piping, the inlet shall be under the disk of the valve.

Where deaerating heaters are not employed, it is recommended that the temperature of the feedwater be greater than 120°F to avoid the possibility of causing localized stress. Where deaerating heaters are employed, it is recommended that the minimum feedwater temperature be greater than 215°F so that dissolved gases may be thoroughly removed from the feedwater.

B-8 Water Level Indicators

Each boiler, except forced-flow steam generators with no fixed steam and waterline, and high-temperature forced circulation water boilers that have no steam and waterline, shall have at least one water gage glass. Boilers operated at pressures greater than 400 psig shall be provided with two water gage glasses which may be connected to a single water column or connected directly to the drum.

Two independent remote level indicators may be provided instead of one of the two required gage glasses for boiler drum water level indication in the case of power boilers with all drum safety valves set at or above 900 psig. When both remote level indicators are in reliable operation, the remaining gage glass may be shut off, but shall be maintained in serviceable condition.

When the direct reading of gage glass water level is not readily visible to the operator in the working area near the boiler, two dependable indirect indications shall be provided, either by transmission of the gage glass image or by remote level indicators.

The lowest visible part of the water gage glass shall be at least 2 inches above the lowest permissible water level (the level at which there will be no danger of overheating any part of the boiler). When remote level indication is provided for the operator in lieu of the gage glass, the same minimum level reference shall be clearly marked.

Connections from the boiler to the remote level indicator shall be at least 3/4 inch pipe size to and including the isolation valve and from there to the remote level indicator at least 1/2 inch outside diameter tubing. These connections shall be completely independent of other connections for any function other than water level indication. For pressures of 400 psig or greater, lower connections to drums shall be provided with shields, sleeves, or other suitable means to reduce temperature differentials in the shells or heads.

Horizontal firetube type boilers shall be set that when the water is at the lowest reading in the water gage glass there shall be at least 3 inches of water over the highest point of the tubes, flues, or crown sheets.

Locomotive boilers shall have at least one water glass provided with top and bottom shutoff cocks and lamp.

The bottom mounting for water glass and for water column, if used, must extend at least 1-1/2 inches inside the boiler and beyond any obstacle immediately above it, and the passage must be straight and horizontal.

Tubular water glasses must be equipped with a protecting shield.

All connections on the gage glass shall be not less than 1/2 inch pipe size. Each water gage glass shall be fitted with a drain cock or valve having an unrestricted drain opening of not less than 1/4 inch diameter to facilitate cleaning. When the boiler operating pressure exceeds 100 psig, the glass shall be furnished with a connection to install a valved drain to the ash pit or other safe discharge point.

Each water gage glass shall be equipped with a top and a bottom shutoff valve of such through-flow construction as to prevent stoppage by deposits of sediments. If the lowest valve is more than 7 feet above the floor or platform from which it is operated, the operating mechanism shall indicate by its position whether the valve is open or closed. The pressure-temperature rating shall be at least equal to that of the lowest set pressure of any safety valve on the boiler drum and the corresponding saturated-steam temperature.

Straight-run globe valves shall not be used on such connections.

Automatic shutoff valves shall conform to the requirements of Section I of the ASME Code.

B-9 Water Columns

The water column shall be mounted so that it will maintain its correct position relative to the normal waterline under operating conditions.

The minimum size of pipes connecting the water column to a boiler shall be 1 inch. For pressures greater than 400 psig, lower water column connections to drums shall be provided with shields, sleeves, or other suitable means to reduce the effect of temperature differentials in the shells or heads. Water glass fittings or gage cocks may be connected directly to the boiler.

The steam and water connections to a water column or a water gage glass shall be such that they are readily accessible for internal inspection and cleaning. Two acceptable methods of meeting this requirement are:

A. providing a cross or fitting with a back outlet at each right-angle turn to permit inspection and cleaning in both directions, or;

B. using pipe bends or fittings of a type which does not leave an internal shoulder or pocket in the pipe connection and with a radius of curvature which will permit the passage of a rotary cleaner.

Screwed plug closures using threaded connections as allowed by Section I of the ASME Code are acceptable means of access for this inspection and cleaning. For boilers with all drum safety valves set at or above 400 psig, socket-welded plugs may be used for this purpose in lieu of screwed plugs. The water column shall be fitted with a connection for a drain cock or drain valve to install a pipe of at least 3/4 inch pipe size to the ash pit or other safe point of discharge. If the water connection to the water column has a rising bend or pocket which cannot be drained by means of the water column drain, an additional drain shall be placed on this connection in order that it may be blown off to clear any sediment from the pipe.

The design and material of a water column shall comply with the requirements of Section I of the ASME Code. Water columns made of cast iron in accordance with SA-278 may be used for maximum boiler pressures of 250 psig. Water columns made of ductile iron in accordance with SA-395 may be used for maximum boiler pressures of 350 psig. For higher pressures, steel construction shall be used.

Shutoff valves should not be used in the pipe connections between a boiler and a water column or between a boiler and the shutoff valves required for the gage glass. If shutoff valves are used, they must be:

A. outside-screw-and-yoke valve, or;

B. lever-lifting type gate valves, or;

C. stopcocks with permanently fastened levers, or;

D. stopcocks with through-flow construction to prevent stoppage by deposits of sediment

Additionally, the position of the operating mechanisms must indicate whether they are in open or closed position and these valves or cocks shall be locked or sealed open. When stopcocks are used, they must have the plug held in place by a guard or gland.

No outlet connections, except for control devices (such as damper regulators and feedwater regulators), drains, steam gages, or apparatus of such form as does not permit the escape of an appreciable amount of steam or water shall be placed on the pipes connecting a water column or gage glass to a boiler.

B-10 Gage Glass Connections

Gage glasses and gage cocks that are not connected directly to a shell or drum of the boiler shall be connected by one of the following methods:

A. The water gage glass or glasses and gage cocks shall be connected to an intervening water column.

B. When only water gage glasses are used, they may be mounted away from the shell or drum and the water column omitted, provided the following requirements are met:

1. the top and bottom gage glass fittings are aligned, supported, and secured so as to maintain the alignment of the gage glass; and

2. the steam and water connections are not less than 1 inch pipe size and each water glass is provided with a valved drain; and

3. the steam and water connections comply with the requirements of the following:

a. the lower edge of the steam connection to a water column or gage glass in the boiler shall not be below the highest visible water level in the water gage glass. There shall be no sag or offset in the piping which will permit the accumulation of water; and

b. the upper edge of the water connection to a water column or gage glass and the boiler shall not be above the lowest visible water level in the gage glass. No part of this pipe connection shall be above the point of connection at the water column.

B-11 Pressure Gages

Each boiler shall have a pressure gage located so that it is easily readable. The pressure gage shall be installed so that it indicates the pressure in the boiler at all times. Each steam boiler shall have the pressure gage connected to the steam space or to the water column or its steam connection. A valve or cock shall be placed in the gage connection adjacent to the gage. An additional valve or cock may be located near the boiler providing it is locked or sealed in the open position. No other shutoff valves shall be located between the gage and the boiler. The pipe connection shall be of ample size and arranged so that it may be cleared by blowing out. For a steam boiler, the gage or connection shall contain a siphon or equivalent device which will develop and maintain a water seal that will prevent steam from entering the gage tube. Pressure gage connections shall be suitable for the maximum allowable working pressure and temperature, but, if the temperature exceeds 406^{o}F, brass or copper pipe or tubing shall not be used. The connections to the boiler, except the siphon, if used, shall not be less than 1/4 inch inside diameter standard pipe size. Where steel or wrought iron pipe or tubing is used, the minimum pipe size is 1/2 inch inside diameter. The minimum size of a siphon shall be 1/4 inch inside diameter. The dial of the pressure gage shall be graduated to approximately double the pressure at which the safety valve is set, but in no case, less than 1-1/2 times the safety valve pressure.

Each forced-flow steam generator with no fixed steam and waterline shall be equipped with pressure gages or other pressure measuring devices located as follows:

A. at the boiler or superheater outlet (following the last section which involves absorption of heat), and

B. at the boiler or economizer inlet (preceding any section which involves absorption of heat), and

C. upstream of any shutoff valve which may be used between any two sections of the heat absorbing surface.

Each high-temperature water boiler shall have a temperature gage, located and connected, so that it shall be easily readable. The temperature gage shall be installed at, or near the outlet connection, so that it indicates the water temperature in degrees Fahrenheit in the boiler at all times.

B-12 Stop Valves

Each steam outlet from a boiler (except safety valve and water column connections) shall be fitted with a stop valve located as close as practical to the boiler.

When a stop valve is located so that water can accumulate, ample drains shall be provided. The drainage shall be piped to a safe location and shall not be discharged on the top of the boiler or its setting.

When two or more boilers provided with manholes are connected to a common steam main, the steam piping from each boiler shall be fitted with two stop valves having an ample free blow drain between them. The discharge of the drain shall be visible to the operator while operating the valves and shall be piped clear of the boiler setting. It is preferred that the stop valves consist of one automatic nonreturn valve (set next to the boiler) and a second valve of the outside-screw-and-yoke type.

B-13 Blowoff Piping

A blowoff is defined as a pipe connection provided with valves located in the external piping through which the water in the boiler may be blown out under pressure, excepting drains which are used on water columns, gage glasses, or piping to feedwater regulators, etc., used for the purpose of determining the operating conditions of the boiler. Piping connections used primarily for continuous operation, such as deconcentrators on continuous blowdown systems, are not considered to be blowoffs, but the pipe connections and all fittings up to and including the first shutoff valve for pressures up to 100 psig and up to and including the second shut off valve for pressures exceeding 100 psig shall be at least equal to the pressure requirements for the lowest set pressure of any safety valve on the boiler drum and with the corresponding saturated-steam temperature.

A surface blowoff shall not exceed 2-1/2 inch pipe size. The internal pipe and the terminal connection for the external pipe, when used, shall form a continuous passage, but with clearance between their ends and arranged so that the removal of either will not disturb the other. A properly designed steel bushing, similar to, or the equivalent of, those shown in Fig. PG-59.1 of Section I of the ASME Code or a flanged connection shall be used.

Each boiler except forced-flow steam generators with no fixed steam and waterline and high-temperature water boilers shall have a bottom blowoff outlet in direct connection with the lowest water space practical for external piping. This blowoff outlet shall conform to PG-58.3.6 of Section I of the ASME Code.

All water walls and water screens which do not drain back into the boiler, and all integral economizers, shall be equipped with outlet connections for a blowoff or drain line and conform to the requirements of PG-58.3.6 or PG-58.3.7 of the ASME Code.

Except as permitted for miniature boilers, the minimum size of pipe and fittings shall be 1 inch, and the maximum size shall be 2-l/2 inches, except for boilers with 100 square feet of heating surface or less, the minimum size of pipe and fittings may be 3/4 inch.

Condensate return connections of the same size or larger than the size specified may be used, and the blowoff may be connected to them. In this case, the blowoff shall be located so that the connection may be completely drained.

A bottom blowoff pipe that is exposed to direct furnace heat shall be protected by firebrick or other heat resistant material which is arranged so that the pipe may be inspected.

An opening in the boiler setting for a blowoff pipe shall be arranged to provide free expansion and contraction.

B-14 Repairs and Renewals of Boiler Fittings and Appliances

Whenever repairs are made to fittings or appliances or it becomes necessary to replace them, the work shall comply with the requirements for new installations.

B-15 Conditions Not Covered By These Requirements

All cases not specifically covered by these requirements shall be treated as new installations or may be referred to the Chief Boiler Inspector for instructions concerning the requirements.

PART V - HEATING BOILERS

H-1 Standard Boilers

The maximum allowable working pressure of standard boilers shall in no case exceed the pressure indicated by the manufacturer's identification stamped or cast on the boiler or on a plate secured to it.

H-2 Nonstandard Riveted Boilers

The maximum allowable working pressure on the shell of a nonstandard riveted heating boiler shall be determined in accordance with B-3, except that in no case shall the maximum allowable working pressure of a steam heating boiler exceed 15 psig or in a hot water boiler exceed 160 psig or 250^{o}F.

H-3 Nonstandard Welded Boilers

The maximum allowable working pressure of a nonstandard steel or wrought iron heating boiler of welded construction shall not exceed 15 psig for steam. For other than steam service, the maximum allowable working pressure shall be calculated in accordance with Section IV of the ASME Code, but in no case shall it exceed 30 psig.

H-4 Nonstandard Cast Iron Boilers

The maximum allowable working pressure of a nonstandard boiler composed principally of cast iron shall not exceed 15 psig for steam service or 30 psig for hot water service.

The maximum allowable working pressure of a nonstandard boiler having cast iron shell or heads and steel or wrought iron tubes shall not exceed 15 psig for steam service or 30 psig for hot water service.

H-5 Potable Water Heaters

A potable water heater shall not be installed or used at pressures exceeding 160 psig or water temperatures exceeding 210^{o}F. Water heaters may be used to simultaneously provide potable hot water and space heat in combination as long as the heat input does not exceed 200,000 BTUs.

H-6 Oil Field Boiler

Designated oil field boilers will be required to have all instruments, fittings and controls mandated by the original code of construction.

H-7 Steam Boiler Safety Valves

Each steam boiler shall have one or more ASME/National Board stamped and certified safety valves of the spring pop-type adjusted and sealed to discharge at a pressure not to exceed 15 psig. Seals shall be attached in a manner to prevent the valve from being taken apart without breaking the seal. The safety valves shall be arranged so that they cannot be reset to relieve at a higher pressure than the maximum allowable working pressure on the boiler. A body drain connection below seat level shall be provided by the manufacturer and this drain shall not be plugged during or after field inspection. For valves exceeding 2 inch pipe size, the drain hole or holes shall be tapped not less than 3/8 inch pipe size. For valves less than 2 inches, the drain hole shall not be less than 1/4 inch in diameter.

No safety valve for a steam boiler shall be smaller than 1/2 inch. No safety valve shall be larger than 4-1/2 inches. The inlet opening shall have an inside diameter equal to, or greater than, the seat diameter.

The minimum relieving capacity of the valve or valves shall be governed by the capacity marking on the boiler.

The minimum valve capacity in pounds per hour shall be the greater of that determined by dividing the maximum BTU output (obtained by the firing of any fuel for which the unit is installed) at the boiler nozzle by 1000, or shall be determined on the basis of the pounds of steam generated per hour per square foot of boiler heating surface as given in Table H-7. In many cases a greater relieving capacity of valves than the minimum specified by these rules will have to be provided. In every case, the requirements of H-7 shall be met.

TABLE H-7
MINIMUM POUNDS OF STEAM PER HOUR
PER SQUARE FOOT OF HEATING SURFACE

	Firetube Boilers	Watertube Boilers
Boiler Heating Surface		
Hand Fired	5	6
Stoker Fired	7	8
Oil, Gas or Pulverized Fuel Fired	8	10
Waterwall Heating Surface		
Hand Fired	8	8
Stoker Fired	10	12
Oil, Gas or Pulverized Fuel Fired	14	16

(1) When a boiler is fired only by a gas giving a heat value not in excess of 200 BTU per cubic foot (ft^3), the minimum safety valve or safety relief valve relieving capacity may be based on the value given for hand fired boilers.

(2) The minimum safety valve or safety relief valve relieving capacity for electric boilers shall be 3-1/2 pounds per hour per kilowatt input.

(3) For heating surface determination see ASME Code Section IV, paragraph HG-403.

The safety valve capacity for each steam boiler shall be such that with the fuel burning equipment installed, and operating at maximum capacity, the pressure cannot rise more than 5 psig above the maximum allowable working pressure.

When operating conditions are changed, or additional boiler heating surface is installed, the valve capacity shall be increased, if necessary, to meet the new conditions and be in accordance with H-7. When additional valves are required, they may be installed on the outlet piping provided there is no intervening valve.

If there is any doubt as to the capacity of the safety valve, an accumulation test shall be run. (See ASME Code, Section VI, Recommended Rules for Care and Operation of Heating Boilers)

No valve of any description shall be placed between the safety valve and the boiler, or on the discharge pipe between the safety valve and the atmosphere. THE DISCHARGE PIPE SHALL BE AT LEAST FULL SIZE AND BE FITTED WITH AN OPEN DRAIN TO PREVENT WATER LODGING IN THE UPPER PART OF THE SAFETY VALVE OR IN THE DISCHARGE PIPE. When an elbow is placed on the safety valve discharge pipe, it shall be located close to the safety valve outlet or the discharge pipe shall be securely anchored and supported. All safety valve discharges shall be located or piped so as not to endanger persons working in the area. No more than one elbow is permitted on the discharge of the safety valve.

H-8 Hot Water Heating/Supply Boilers Safety Relief Valve Requirements

Each hot water heating and hot water supply boiler shall have at least one ASME/National Board stamped and certified safety relief valve set to relieve at or below the maximum allowable working pressure of the boiler. Each hot water supply boiler shall have at least one ASME/National Board stamped and certified safety relief valve of the automatic reseating type set to relieve at or below maximum allowable working pressure of the boiler. Safety relief valves ASME/National Board stamped and certified as to capacity shall have pop action when tested by steam. When more than one safety relief valve is used on either a hot water heating or hot water supply boiler, the additional valve or valves shall be ASME/National Board stamped and certified and may be set within a range not to exceed 6 psig above the maximum allowable working pressure of the boiler up

to and including 60 psig and 5 percent for those having a maximum allowable working pressure exceeding 60 psig. Safety relief valves shall be spring loaded. Safety relief valves shall be arranged so that they cannot be reset at a higher pressure than the maximum permitted by this paragraph.

No materials likely to fail due to deterioration or vulcanization when subject to saturated steam temperature corresponding to capacity test pressure shall be used for any part of a safety relief valve.

No safety relief valve shall be smaller than 3/4 inch or larger than 4-1/2 inches standard pipe size, except that boilers having a heat input less than 15,000 BTU per hour may be equipped with a safety relief valve of 1/2 inch standard pipe size. The inlet opening shall have an inside diameter approximately equal to, or greater than, the seat diameter. In no case shall the minimum opening through any part of the valve be less than 1/4 inch in diameter or its equivalent area.

The required steam relieving capacity, in pounds per hour, of the pressure relieving device or devices on a boiler shall be the greater of that determined by dividing the maximum output in BTU (obtained by the firing of any fuel for which the unit is installed) at the boiler nozzle by 1,000 or shall be determined on the basis of pounds of steam generated per hour per square foot of boiler heating surface as given in Table H-7. In many cases a greater relieving capacity of valves will have to be provided, than the minimum specified by these rules. In every case, the requirements of H-8 shall be met.

When operating conditions are changed, or additional boiler heating surface is installed, the valve capacity shall be increased, if necessary, to meet the new conditions and shall be in accordance with H-8. The additional valves required may be installed on the outlet piping provided there is no intervening valve.

Safety relief valve capacity for each boiler shall be such that, with the fuel burning equipment installed and operated at maximum capacity, the pressure cannot rise more than 10 percent above the maximum allowable working pressure. When more than one safety relief valve is used, the over pressure shall be limited to 10 percent above the set pressure of the highest set valve allowed by H-7.

If there is any doubt as to the capacity of a safety relief valve, an accumulation test shall be run. (See ASME Code, Section VI, Recommended Rules for Care and Operation of Heating Boilers)

No valve of any description shall be placed between the safety relief valve and the boiler, nor on the discharge pipe between the safety relief valve and the atmosphere. THE DISCHARGE PIPE SHALL BE NOT LESS THAN THE DIAMETER OF THE SAFETY RELIEF VALVE OUTLET AND FITTED WITH AN OPEN DRAIN TO PREVENT WATER LODGING IN THE UPPER PART OF THE SAFETY RELIEF VALVE OR IN THE DISCHARGE PIPE. When an elbow is placed on the safety relief valve discharge pipe, it shall be located close to the safety relief valve outlet or the discharge pipe shall be

securely anchored and supported. All safety relief valve discharges shall be located or piped so as not to endanger persons working in the area. No more than one elbow is permitted on the discharge of the safety valve.

H-9 Steam Boiler Steam Gages

Each steam boiler shall have a steam gage or a compound steam gage connected to its steam space or to its water column or to its steam connection. The gage or connection shall contain a siphon or equivalent device which will develop and maintain a water seal that will prevent steam from entering the gage tube. The connection shall be arranged so that the gage cannot be shut off from the boiler except by a cock placed in the pipe at the gage and provided with a tee or lever handle arranged to be parallel to the pipe in which it is located when the cock is open. The connections to the boiler shall be not less than 1/4 inch standard pipe size, but where steel or wrought iron pipe or tubing is used, they shall be not less than 1/2 inch standard pipe size. The minimum size of a siphon shall be 1/4 inch inside diameter. Ferrous and nonferrous tubing having inside diameters at least equal to that of standard pipe sizes listed above may be substituted for pipe.

The scale on the dial of a steam boiler gage shall be graduated to not less than 30 psig nor more than 60 psig. The travel of the pointer from 0 to 30 psig shall be at least 3 inches.

H-10 Hot Water Boiler Pressure or Altitude Gages and Thermometers

Each hot water boiler shall have a pressure or altitude gage connected to it or to its flow connection in such a manner that it cannot be shut off from the boiler except by a cock with tee or lever handle, placed on the pipe near the gage. The handle of the cock shall be parallel to the pipe in which it is located when the cock is open.

The scale on the dial of the pressure or altitude gage shall be graduated approximately to not less than 1½ or more than 3½ times the pressure at which the safety relief valve is set.

Piping or tubing for pressure or altitude gage connections shall be of nonferrous metal when smaller than 1 inch pipe size.

Each hot water boiler shall have a thermometer located and connected so that it is easily readable when observing the water pressure or altitude. The thermometer shall be located so that it indicates the boiler water temperature at, or near the outlet in degrees Fahrenheit at all times.

H-11 Steam Boiler Water Gage Glasses

Each steam boiler shall have one or more water gage glasses attached to the water column or boiler by means of valved fittings not less than 1/2 inch pipe size, with the lower fitting provided with a drain valve of a type having an unrestricted drain opening not less than 1/4 inch in diameter to facilitate cleaning. Gage glass

replacement shall be possible under pressure. Water gage glass fittings may be attached directly to a boiler.

Boilers having an internal vertical height of less than 10 inches may be equipped with a water level indicator of the glass bull's-eye type provided the indicator is of sufficient size to show the water at both normal operating and low water cutoff levels.

The lowest visible part of the water gage glass shall be at least 1 inch above the lowest permissible water level recommended by the boiler manufacturer. With the boiler operating at this lowest permissible water level, there shall be no danger of overheating any part of the boiler.

At the time of manufacture each boiler shall be provided with a permanent marker indicating the lowest permissible water level. The marker shall be stamped, etched, or cast in metal or it shall be a metallic plate attached by rivets, screws, or welding or it shall consist of material with documented tests showing its suitability as a permanent marking for the application. This marker shall be visible at all times. Where the boiler is shipped with a jacket, this marker may be located on the jacket.

In electric boilers of the submerged electrode type, the water gage glass shall be located to indicate the water levels both at startup and under maximum steam load conditions as established by the manufacturer.

In resistance heating element type electric boilers the lowest visible part of the water gage glass shall not be below the top of the electric resistance heating element. Each boiler of this type shall also be equipped with an automatic low-water electrical power cutoff to automatically cut off the power supply before the surface of the water falls below the top of the electrical resistance heating elements.

Tubular water glasses on electric boilers having a normal water content not exceeding 100 gallons shall be equipped with a protective shield.

H-12 Stop Valves

When a stop valve is used in the supply pipe connection of a single steam boiler, there shall also be one used in the return pipe connection.

Stop valves in single hot water heating boilers shall be located at an accessible point in the supply and return pipe connections, as near the boiler nozzle as is convenient and practical, to permit draining the boiler without emptying the system.

When the boiler is located above the system and can be drained without draining the system, stop valves may be eliminated.

A stop valve shall be used in each supply and return pipe connection of two or more boilers connected to a common system.

All valves or cocks shall conform to the applicable portions of HF-203 of Section IV of the ASME Code and may be ferrous or nonferrous.

The minimum pressure rating of all valves or cocks shall be at least equal to the pressure stamped on the boiler and the temperature rating of such valves or cocks, including all internal components, shall be not less than 250^{o}F.

Valves or cocks shall be flanged, threaded or have ends suitable for welding or brazing.

All valves or cocks with stems or spindles shall have adjustable pressure type packing glands and, in addition, all plug type cocks shall be equipped with a guard or gland. The plug or other operating mechanism shall be distinctly marked in line with the flow to indicate whether it is opened or closed.

All valves or cocks shall have tight closure when under boiler pressure test.

When stop valves are used, they shall be properly and substantially designated by tags of metal or other durable material fastened to them.

H-13 Feedwater Connections

Feedwater, makeup water, or water treatment shall be introduced into a boiler through the return piping system. Alternatively, makeup water or water treatment may be introduced through a separate connection. The water flow from the separate connection shall not discharge directly against parts of the boiler exposed to direct radiant heat from the fire. Makeup water or water treatment shall not be introduced through openings or connections provided for inspection or cleaning, safety valve, safety relief valve, blowoff, water column, water gage glass, pressure gage, or temperature gage.

The makeup water pipe shall be provided with a check valve near the boiler and a stop valve or cock between the check valve and the boiler or between the check valve and the return pipe system.

H-14 Water Column and Water Level Control Pipes

The minimum size of ferrous or nonferrous pipes connecting a water column to a steam boiler shall be 1 inch. No outlet connections, except for damper regulator, feedwater regulator, steam gages, or apparatus which does not permit the escape of any steam or water except for manually operated blowdowns, shall be attached to a water column or the piping connecting a water column to a boiler. (See HG-705 of Section IV of the ASME Code for introduction of feedwater into a boiler) If the water column, gage glass, low-water fuel cutoff, or other water level control device is connected to the boiler by pipe and fittings, no shutoff valves of any type shall be placed in this pipe. Additionally, a cross or equivalent fitting to

which a drain valve and piping may be attached shall be placed in the water piping connection at every right angle turn to facilitate cleaning. The water column drain pipe and valve shall be not less than 3/4 inch in pipe size.

The steam connections to the water column of a horizontal firetube wrought iron boiler shall be taken from the top of the shell or the upper part of the head, and the water connection shall be taken from a point below the center line of the shell. For a cast iron boiler, the steam connection to the water column shall be taken from the top of an end section or the top of the steam header, and the water connection shall be made on an end section not less than 6 inches below the bottom connection to the water gage glass.

H-15 Condensate Return Pump

Each boiler equipped with a condensate return pump shall be provided with a water level control arranged to automatically maintain the water level in the boiler within the range of the gage glass.

H-16 Repairs and Renewals of Fittings and Appliances

Whenever repairs are made to fittings or appliances, or it becomes necessary to replace them, the repairs must comply with Section IV of the ASME Code for new construction.

PART VI - PRESSURE VESSELS

P-1 Pressure Vessels Not Requiring Certificates of Operation

The following pressure vessels are subject to the provisions of the Act, but are not required to be uniquely identified or be issued a Certificate of Operation.

A. Pressure vessels attached to a low pressure boiler system (e.g. expansion tanks in a hot water heating system or storage tanks in a hot water supply system).

B. Portable air receivers with no compressing unit attached.

C. Pressure vessels containing Freon which are connected to a refrigeration or air conditioning system.

D. Heat exchangers connected to low pressure boiler systems.

Although no Certificate to Operate will be issued for these pressure vessels, inspectors will inspect them to assure safety. Vessels that meet safety standards will be marked with an inspection sticker. Vessels that do not meet safety standards will have to be brought up to safety standards or replaced.

No fee will be assessed for the inspection of these vessels.

P-2 Maximum Allowable Working Pressure for Standard Pressure Vessels

The maximum allowable working pressure for standard pressure vessels shall be determined in accordance with the applicable provisions of the edition of the ASME Code or the API-ASME Code under which they were constructed and stamped.

P-3 Nonstandard Pressure Vessels

Nonstandard pressure vessels installed prior to July 1, 1999, may remain in service providing the owner/user proves that the vessel meets the requirements of Section P-4 below. Nonstandard pressure vessels will not be relocated or repaired. If nonstandard pressure vessels are disconnected and removed from service, they shall not be reinstalled. These vessels must be replaced with a vessel constructed in accordance with Section VIII of the ASME Boiler and Pressure Vessel Code.

P-4 Maximum Allowable Working Pressure for Nonstandard Pressure Vessels

The maximum allowable working pressure of a nonstandard pressure vessel shall be determined by the strength of the weakest course computed from the thickness of the plate, the tensile strength of the plate, the efficiency of the longitudinal joint, the inside diameter of the course and the factor of safety set by these rules.

$$\frac{TStE}{RFS} = \text{MAWP (psig)}$$

where:

TS = specified minimum tensile strength of shell plate material, psi. (When the tensile strength of carbon steel plate is not known, it may be taken as 55,000 psi for temperatures not exceeding 650^{o}F. For other materials use the lowest stress values for that material from Section VIII.)

t = minimum thickness of shell plate of weakest course, inches

E = efficiency of longitudinal joint depending upon construction (Use the following values: for riveted joints - calculate efficiency in accordance with ASME Code Section VIII 1971 and prior; for fusion-welded and brazed joints - appropriate value below)

Joint Type	Efficiency (%)
Single lap weld	40
Double lap weld	50
Single butt weld	60
Double butt weld	70
Forge weld	70
Brazed steel	80

R = inside radius of weakest course of shell (inches) provided the thickness does not exceed 10 percent of the radius. If the thickness is over 10 percent of the radius, the outer radius shall be used.

FS = factor of safety allowed by these rules.

The minimum factor of safety shall in no case be less than five (5) for existing installations. The working pressure shall be decreased when deemed necessary by the inspector to ensure the operation of the vessel within safe limits. The condition of the vessel and the particular service to which it is subject will be the determining factors.

The maximum allowable working pressure permitted for formed heads under pressure shall be determined by using the appropriate formulas from ASME Code Section VIII, Division 1, and the tensile strength and factors of safety given in P-2 and P-4.

The maximum allowable working pressure for nonstandard pressure vessels subjected to external pressure shall be determined by the rules of Section VIII, Division 1, of the ASME Code.

P-5 Non ASME Vessel Acceptance

Pressure vessels that were not ASME Code stamped may be accepted at the discretion of the Division. These vessels must be constructed with known materials and be designed and constructed in accordance with sound engineering standards, formulas, and practices that provide safety equivalent to the intent of the ASME Code. Owners of these vessels shall contact the Chief Boiler Inspector for guidance on applying for acceptance of these vessels.

P-6 Inspection Frequency

Pressure vessels should be inspected on the applicable frequency listed below unless an extension is granted in writing by the Division of Safety.

A. Heat exchangers that operate from high pressure steam or high temperature water plants shall be inspected every twenty-four (24) months.

B. Autoclaves that operate above 15 psi steam pressure shall be inspected every twenty-four (24) months.

C. All other pressure vessels which fall under the jurisdiction of the Division of Safety shall be inspected every forty-eight (48) months.

These inspections will be external inspections. In connection with a regularly scheduled inspection, or at any other time deemed necessary by the inspector, an internal inspection may also be conducted, pressure vessel construction permitting.

P-7 Application of Vessel Identification Numbers

When a new vessel has been inspected and determined to be in full compliance with Utah Code requirements, the inspector will apply a unique identification number to that vessel. These numbers (UV numbers) are assigned to each inspector by the Chief Boiler Inspector.

The UV number may be applied by any of the following ways:

A. Stamped in vessel data plate

B. Stamped on a metal tag attached to or hung on the vessel

C. Marked on the vessel with a permanent marker

P-8 Inspection of Inaccessible Parts

Where, in the opinion of the inspector, as the result of conditions disclosed at the time of inspection, it may be necessary to remove interior or exterior lining, covering or brickwork to expose certain parts of the vessel not normally visible,

the owner or user shall remove such material to permit proper inspection and to determine remaining thickness.

P-9 Overpressure Protection

Each pressure vessel shall be provided with pressure relief devices, indicating devices, and controlling devices as necessary to protect against overpressure. These devices shall be constructed, located, and installed so that they cannot readily be rendered inoperative. The relieving capacity of a single pressure relief device shall be adequate to prevent a rise in pressure in the vessel of more than 10 percent or 3 psig, whichever is greater, above the maximum allowable working pressure. When multiple relieving devices are installed, they shall prevent the pressure from rising more than 16 percent or 4 psig, whichever is greater, above the maximum allowable working pressure. When multiple pressure relieving devices are provided, at least one device shall be set at or below the maximum allowable working pressure and the additional devices shall be set no higher than 105% of the maximum allowable working pressure and installations shall be in accordance with ASME Code Section VIII, Division 1, Paragraph UG-127. Where an additional hazard is involved due to fire or other unexpected sources of external heat, the pressure relief devices shall meet the requirements of ASME Code Section VIII, Division 1, Paragraph UG-125 or Division 2, Paragraph AR-130, whichever is applicable.

In all cases the pressure relieving device shall be ASME/NB approved and certified.

P-10 Owner/User Inspection

An Owner/User of pressure vessels may perform periodic safety inspections on their own unfired pressure vessels provided the following requirements are met:

A. Have a Utah certified owner/user Inspection Agency, and;

B. Have Utah certified inspectors, and;

C. Provide the Utah Chief Boiler Inspector with an annual vessel inspection summary, and;

D. Maintain complete inspection reports prepared by the Inspection Agency which shall be available for State review at any reasonable time, and;

E. Have a valid Utah certificate of competency

P-11 Owner/User Certification

An Owner/User may be certified by the Labor Commission as an Owner/User Inspection Agency by submitting a written request to the Utah Chief Boiler Inspector. The request shall, at a minimum, state the following:

A. Qualified pressure vessel inspectors are employed by the Owner/User, and;

B. Requirements of NBIC/ANSI/API 510 are being performed, and;

C. Complete inspection records are maintained

P-12 Owner/User Inspectors

An inspector employed by an Owner/User Inspection Agency may be issued a Utah certificate of competency by submitting a written request to the Chief Boiler Inspector. The request shall certify that the inspector has a valid ANSI/API 510 or National Board of Boiler and Pressure Vessel Inspectors qualification. A Utah certificate of competency issued to an Owner/User inspector will be valid for a period of one year and only if the inspector remains in the employment of the same Owner/User. Certificates of competency issued to Owner/User inspectors must be renewed annually.

Owner/User inspectors shall not receive any compensation from the State.

P-13 Pressure Relief Valve Repair

An Owner/User may perform pressure relief valve repair work under the following conditions:

A. They receive QC reviews (initial and annual) from the Chief Boiler Inspector or his designee.

B. They perform the work only on their pressure relief valves, and;

C. The requirements of ANSI/API 510/National Board are followed, and;

D. The pressure relief valves are maintained in accordance with the manufacturer's recommendations, and;

E. At intervals not to exceed three years, the Chief Boiler Inspector may select two pressure relief valves at random from those that have been repaired by the Owner/User and send these valves to an independent testing agency to be tested, at Owner/User expense, for set pressure and capacity.

If either of the valves discussed above fails the testing, the Chief Boiler Inspector may determine an additional number of pressure relief valves to be tested. If any of these valves fails the testing, the Chief Boiler Inspector may require that Owner/User capability to repair pressure relief valves be revoked until their competency can be demonstrated to the satisfaction of the Chief Boiler Inspector.

P-14 Certification Revocation

The Chief Boiler Inspector can revoke, for cause, any or all of the Utah certificates of competency issued to Owner/User Inspection Agencies.

P-15 Fees

Fees for Owner/User Inspection Agency certifications are:

A. Owner/User Inspection Agency Certification Application (one time fee) - $250.00

B. Inspector Certificate of Competency (Initial Issue) - $25.00

C. Inspector Certificate of Competency (Annual Renewal) - $20.00

Fees for Owner/User Inspection Agency Annual Inspection Summaries are:

A. For inspection programs up to twenty five vessels - $5.00 per vessel

B. For inspection programs more than twenty five, but less than one hundred vessels - $100.00

C. For inspection programs more than one hundred, but less than five hundred - $200.00

D. For inspection programs more than five hundred vessels - $400.00

P-16 Owner/User Inspection Program Audits

To assure that the Owner/User inspection program is achieving pressure vessel safety equal to or exceeding the inspection program of the Division of Safety, the Chief Boiler Inspector or his designee will perform an annual audit of each Owner/User inspection program.

P-17 Repairs and Renewals of Fittings and Appliances

Whenever repairs are made to fittings and appliances or it becomes necessary to replace them, the work must comply with the requirements for new installations.

UTAH LABOR COMMISSION
Safety Division
160 East 300 South, 3rd Floor
PO Box 146620
Salt Lake City, Utah 84114-6620
(801) 530-6850

VARIANCE REQUEST

Requesting Organization:		Date:
Contact Name:	Address:	
Telephone:		

Type of Variance: □ Boiler/Pressure Vessel □ Elevator

Code Requirements:

_____
_____
_____
_____
_____
_____
_____

□ Continuation Sheet Attached

Description of Variance Requested:

_____
_____
_____
_____
_____
_____
_____

□ Supporting Documentation or Continuation Sheet Attached

Reviewer	Recommendation	Signature
□ Boiler Inspector	□ Approve □ Approve w/ modifications* □ Disapprove	
□ Deputy Chief Boiler Inspector	□ Approve □ Approve w/ modifications* □ Disapprove	
□ Elevator Inspector	□ Approve □ Approve w/ modifications* □ Disapprove	
□ Chief Elevator Inspector	□ Approve □ Approve w/ modifications* □ Disapprove	

* Attach Continuation Sheet to describe modifications

Disposition	□ Approve □ Approve w/ modifications □ Disapprove

_____

Director of Safety Date

VARIANCE REQUEST SUPPLEMENTAL INFORMATION

Type of variance requested: ☐ Boiler/Pressure Vessel ☐ Elevator		
Location: _____ _____ _____		
Architect:		
Name:	Address:	Telephone:
Engineering Firm:		
Name:	Address:	Telephone:
Installation Contractor:		
Name:	Address:	Telephone
Building Inspector:		
Name:	Address:	Telephone:
Project Information		
Design Completion Date:	Plan Review Conducted: ☐ Yes ☐ No	Installation Completion Date:

Comments:

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